

# AUTOMOTIVE INDUSTRIES

LAND AIR WATER

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Number 15

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# AUTOMOTIVE INDUSTRIES

## AUTOMOBILE

Vol. 64

Reg. U. S. Pat. Off.

No. 15

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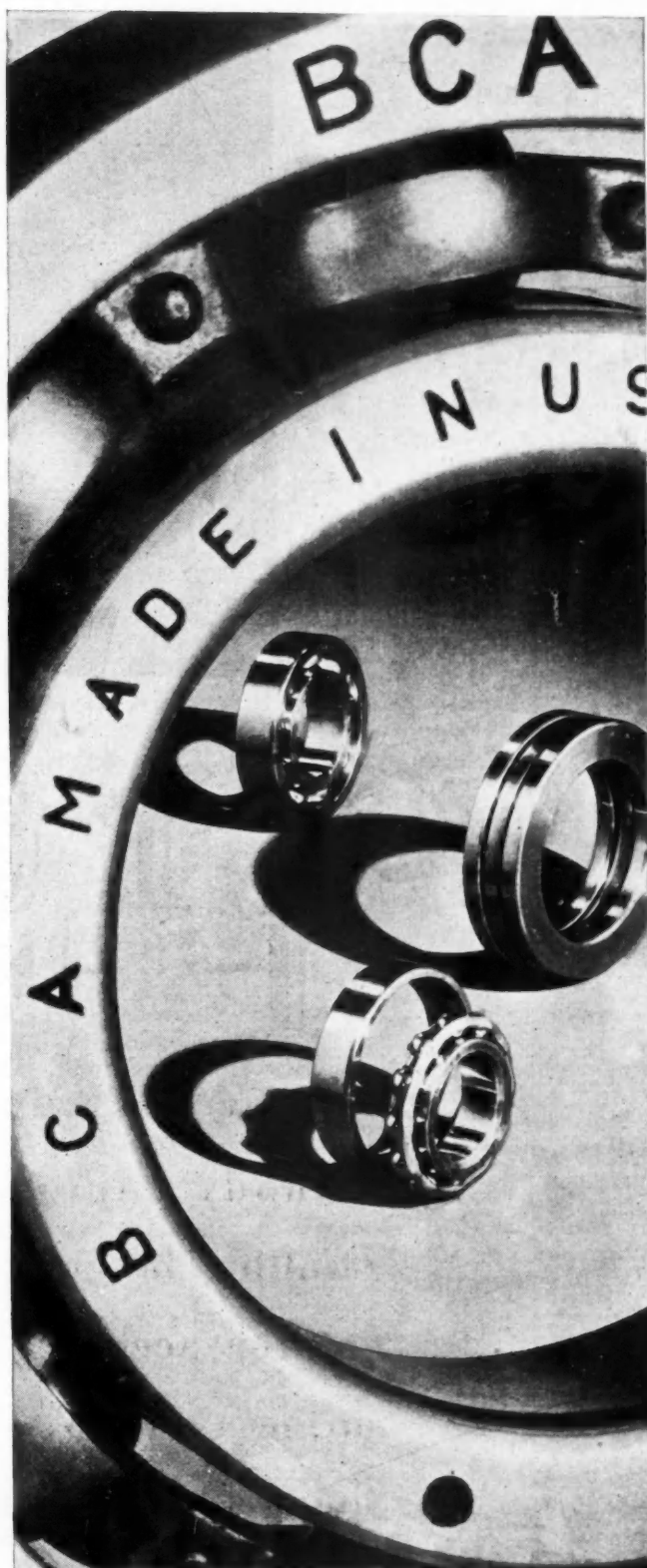
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*Automotive Industries*



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April 11, 1931





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## Canadians Restrict Automobile Imports, U. S. Builders Open Assembly Plants

by  
Leslie  
Peat

Committed to a policy of encouraging Canadian industries, the Conservative government recently announced an Order-in-Council limiting dealers of United States motor vehicles to 20 per cent discount.

Vehicle importations to the Dominion ceased.

To save their dealers, several manufacturers have opened assembly plants in Canada—the situation is told in this story, based upon first-hand information gathered in Detroit and Canada.

"**B**E damned if you do, be damned if you don't!" are the alternatives faced by U. S. motor vehicle manufacturers in viewing the apparent necessity of establishing assembly plants in Canada. This vexing problem is caused by the recent Canadian Order-in-Council reducing the distributor discount on cars, trucks and chassis imported to that country to a flat 20 per cent. This sets the tariff valuation on vehicles imported into Canada at a minimum of 80 per cent of the factory list price.

The former discount, previously established by similar governmental procedure, was the maximum distributor's discount prevailing in the United States at the time of shipment. The new rates, dated Feb. 19, became effective on Feb. 21.

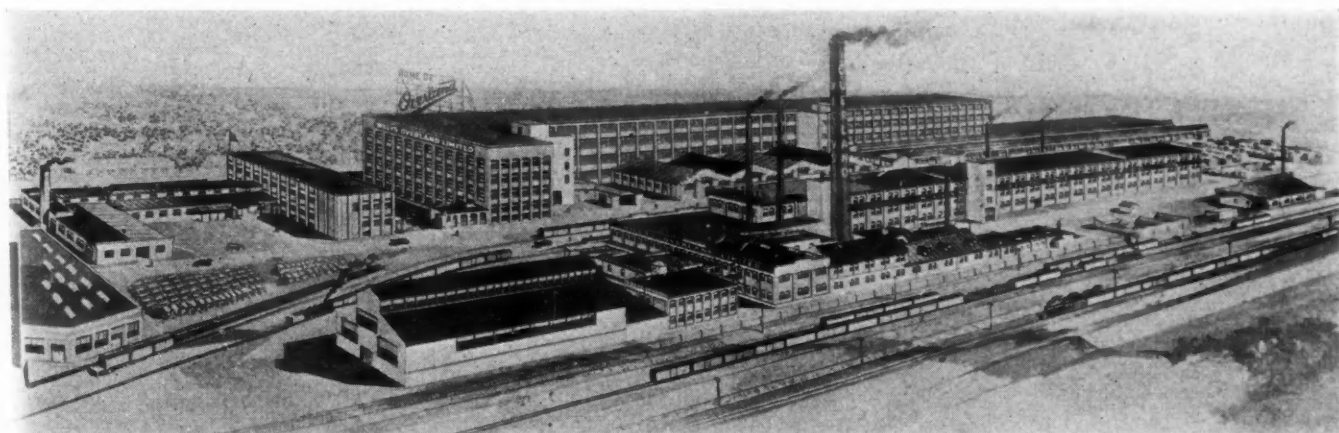
Under the law, any excess in discount over the 20 per cent maximum which might be allowed Canadian importers of U. S. vehicles will be confiscated by the Canadian government as a "dumping duty."

Immediate results of the Order-in-Council have been:

**1** Canadian importers of U. S. cars have flooded their legislators with urgent demands for the suspension of the Order by parliamentary action.

**2** Several U. S. manufacturers have established assembly plants in Canada, even though such operations will in some instances be carried on at a loss.

Specifically, this Order-in-Council (P. C. 297) establishes a discount of 20 per cent on the list price, or "fair market value," of motor vehicles imported from the United States. These prices will be taken



The Willys-Overland plant in Toronto, Canada, covers 27 acres, 11 acres of which are occupied by 34 buildings. Normally 1500 men are employed

to be the value for duty price of the vehicle, provided that these prices are not less than the price actually paid by the importer to the exporter.

This means, in effect, that the Canadian importer-dealer will have to increase the sales price of the vehicle if he is to maintain the margin that exists between his buying and selling price. This will generally be impossible, because it would put his line into a higher price class; on the other hand, such increases would be certain if the Canadian dealer of imported cars were to keep in business. His margin of profit, as that of the U. S. dealer, is no more than adequate to permit a profit, even with the most efficient management.

On the other hand, dealers of Canadian-built cars have shown a great deal of glee over the prospects of eliminating the competition of imported cars and trucks. According to T. A. Russell, president of Willys-Overland, Ltd., and head of Massey-Harris Co., Toronto, the Canadian automobile industry will become "profitable for the first time since 1926," as a result of the Order-in-Council.

He recently told the Canadian section of the Society of Automotive Engineers that, had the order not been passed, the industry in Canada would be wiped out within three or four years.

"Unless the Canadian plants of U. S. parent factories had been able to produce at capacity—which was impossible because of the depression—they soon would have closed," he said.

He pointed out that the government of Canada had thus "invited other manufacturers to operate in Canada," and predicted that the iron, steel and other industries would gain considerable impetus as a result of the Order-in-Council.

And while the importer-dealers on the one hand, and the dealers of makes assembled in Canada on the other, have been presenting their respective claims to the

The East Windsor, Ontario, plant of the Ford Motor Co. of Canada, Ltd., has 1,460,000 sq. ft. of floor space



government, U. S. manufacturers who have had no assembly plants in Canada have been doing some fast thinking about the future of their Dominion market.

The Order-in-Council was about two weeks old when General Motors of Canada, Ltd., announced that it

would resume operations in its Regina plant, which had been shut down about six months. Previously only Chevrolet and Pontiac had been produced there, but an announcement made March 9 said that the company planned to add Oldsmobile to the Regina assembly line.

The Regina plant consists of five buildings with a total of 370,000 sq. ft. of floor space. As many as 850 men have been employed there. It was built more than two years ago to supply the General Motors smaller cars to Western dealers, and has a capacity of more than 20,000 units per year.

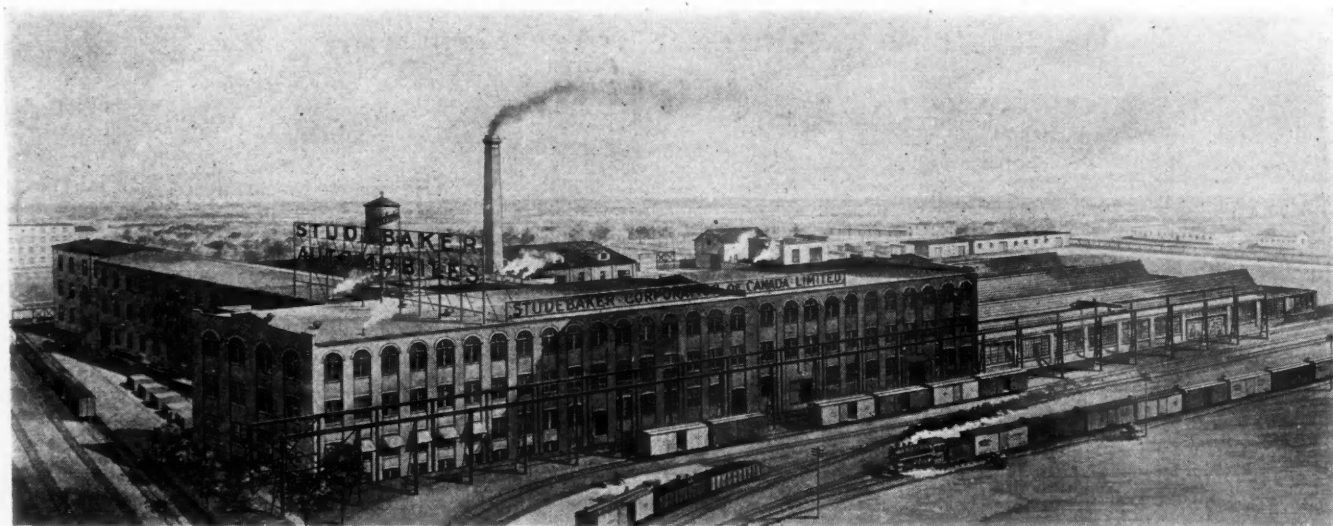
In the midst of numerous rumors linking prominent manufacturers with alleged plans to open plants in Canada, the Dominion Motors, Ltd., actually was organized by Charles W. Nash, president of Nash Motors Co., and Roy D. Kerby, president of Durant Motors of

### Canadian Plants of U. S. Makers

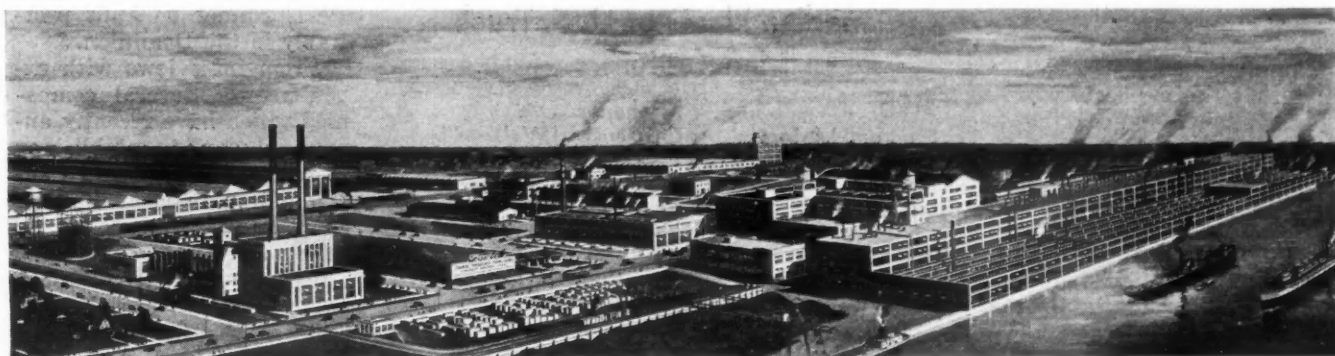
Ford Motor Co. of Canada, Ltd.	East Windsor
General Motors of Canada, Ltd.*	Oshawa and Walkerville
Studebaker Corp. of Canada, Ltd.	Walkerville
Durant Motors of Canada, Ltd.	Toronto
Reo Motor Car Co.	Toronto
Willys-Overland, Ltd.	Toronto
Chrysler Corp. of Canada, Ltd.†	Windsor
Dodge Brothers (Canada), Ltd.	Windsor
Hupp Motor Car Corp.	Windsor

\* Subsidiary companies: Cadillac Motor Car Co. of Canada, Ltd.; Chevrolet Motor Co. of Canada, Ltd.; McLaughlin Motor Car Co. of Canada, Ltd. (Buick); Oakland Motor Car Co. of Canada, Ltd.; Olds Motor Works of Canada, Ltd.

† Subsidiary companies: De Soto Motor Corp. of Canada, Ltd.



The Studebaker Corp. of Canada, Ltd., at Walkerville, Ontario, has floor space of 200,000 sq. ft., while a separate plant for body work has an additional 150,000 sq. ft.



Canada, Ltd., to manufacture passenger cars. Trucks may be added to the line later. The company was authorized to acquire the capital stock and assets of Durant Motors of Canada, Ltd., subject to approval of stockholders. This \$3,000,000 corporation plans to produce Nash cars at the Leaside (Toronto) plant of Durant, and importations of Nash cars into Canada will cease.

Then, on March 23, an announcement from the Hupp Motor Car Co. brought the news that the company "has definitely decided to open an assembly plant as soon as possible, to take care of the company's Canadian business exclusively," as a result of the Order-in-Council setting the discount on imported cars at 20 per cent. The company has owned extensive manufacturing properties in Windsor for a number of years. Approximately 30,000 sq. ft. of manufacturing space is available immediately, and the company plans to improve the site with other manufacturing facilities and get into production within 90 days of the announcement.

Reo Motor Car Co. announced on March 24 that it would begin manufacturing cars for the Dominion market on April 1, in Toronto. Twenty-two years ago, Reo was chartered to manufacture in Canada, and, according to Richard G. Hudson, the company's export sales manager, was the first factory to undertake production operations in Canada on a volume scale. The company's St. Catherine's plant was turned over to the Dominion government for war supplies manufacturing in 1915. A part of the Dodge Bros. plant at Toronto will be used by Reo, according to the company announcement. Reo sales offices and wholesale warehousing will be in Windsor. The plans also include exporting to Great Britain from Canada.

Lined up against the dealers of Canadian-built cars are the 1148 importer-dealers, with their 10,000 or more employees and representing some \$33,000,000 in investment in their dealerships. Although Premier Bennett has indicated that the government will give

some consideration to the existing contracts, these importer-dealers have been busy in preparing and presenting their case to their legislators and government officials. They seem to feel certain that they will be forced out of business by their competitors who sell Canadian-built cars and trucks, unless the ruling is modified or unless their respective factories establish Canadian plants.

Canadian importer-dealers have directed their attack chiefly upon R. S. McLaughlin, president of General Motors of Canada, Ltd., whom they look upon as a principal spokesman of the automobile industry in the Dominion. The original recommendation of Canadian manufacturing interests was for a 17½ per cent maximum discount; the 20 per cent discount was a compromise effected by the government, which had hoped to satisfy both the dealers for Canadian factories and the importer-dealers.

Apparently the policy of manufacturing in Canada has won the day. The list of companies now operating plants in Canada, together with those concerns which have announced plans to do so, contributes

striking evidence that U. S. manufacturers hold little hope either of the suspension of the Order-in-Council, or any change of mind on the part of the Canadian government in respect to encouraging industrial activity in the Dominion in this manner.

The Order-in-Council was intended to encourage automotive plants to operate in Canada, its proponents point out, without increasing the delivered price of

### New Versus Old Basis

In the case of a car retailing for \$1,000 in the United States, and on which the Canadian importing dealer formerly obtained a discount of 30 per cent, the comparison is as follows:

#### OLD BASIS

List .....	\$1,000	
Discount 30 per cent .....	300	
Basis for duty .....	\$700	
Rate of duty .....	20%	
Amount of duty .....	\$140	\$140.00
Duty paid value .....	840	
Excise 5 per cent on \$840 .....		42.00
Import tax 1 per cent on \$840 .....		8.40
Total duty, excise and import tax .....		\$190.40
Add cost of car .....		700.00
Total cost to Canadian distributors f.o.b. port of entry .....		\$890.40

#### NEW BASIS

List .....	\$1,000	
Discount .....	200	
Basis for duty .....	\$800	
Rate of duty .....	20%	
Amount of duty .....	\$160	\$160.00
Duty paid value .....	960	
Excise 5 per cent on \$960 .....		48.00
Import tax 1 per cent on \$960 .....		9.60
Total duty, excise and import tax .....		\$217.60
Add cost of car .....		800.00
Total cost to Canadian distributors f.o.b. port of entry .....		\$1,017.60
Extra duty and excise collected by government .....		27.20



cars and trucks to the consumer.

The Canadian press indicates that the public is well satisfied, generally speaking, about the plan. Since both the Liberal party (just prior to its defeat) and the Conservative party in control have committed themselves to encouragement of industrial enterprise in the Dominion, it would seem that from a political standpoint the Order will not be repealed. It is understood that the Liberal government had planned an Order quite similar to this just before its recent defeat.

To qualify as a "Canadian manufacturer"—that is, to obtain the benefit of a 25 per cent "drawback" or rebate on the duty paid the Canadian Customs on parts imported—a Canadian plant must show 50 per cent "Canadian content." That is, the completed vehicle or chassis must represent at least, on an average for the year's production, 50 per cent of Canadian materials and Canadian labor. Such items as small tools (regardless of where purchased), plant overhead, and other manufacturing costs are considered to be Canadian content, under the revenue ruling of March 31, 1927.

Raw materials shipped from Canada to the United States, fabricated or processed in U. S. plants and then shipped back into Canada, can be figured as "Canadian content."

A 99 per cent rebate on duties paid the government on parts shipped to Canada for assembly may be had if the vehicle is later exported from Canada. Because of the present unsettled condition of the Dominion export arrangements with other British dominions, these rates are subject to change. This, therefore, practically eliminates any possibility for a factory to outline a detailed export policy.

Canadian manufacturing operations of U. S. company subsidiaries concerns are closely confined to assembling imported parts and those supplies and parts that can be profitably manufactured in the Dominion. Castings, component parts and many small-production

## Canadian Plants of U. S. Truck Manufacturers

FWD  
General Motors  
Reo  
Rugby  
Willys-Overland  
Dodge Bros.  
Fargo  
S. P. A.

Kitchener  
Oshawa and Walkerville  
Toronto  
Toronto  
Toronto  
Windsor  
Windsor  
Walkerville

items cannot be built profitably in the Dominion.

From interviews with executives of several companies which have recently announced plans to establish or to reestablish plants in Canada, it would appear that the adoption of this policy is simply the lesser of two evils. The only alternative would be to cease their sales efforts in the Dominion, and let their Canadian dealers cancel their contracts, and

call it a day. This would throw overboard any chance to cash in on the large investments in goodwill they have made.

Several of the executives point out that they believe there is no hope in trying to salvage their Canadian business without assembling cars in the Dominion under the terms of the revenue acts and the current Order-in-Council.

"The assembly plant investment for our company will run into thousands of dollars. But it seems a sound investment because we have enjoyed a good share of the Canadian business in the past, we have the confidence of a strong dealer organization, and we may reasonably expect a continued business in the Dominion," one company sales head said.

"We can't export our product into Canada under the Order and compete with other makes, because we would have to raise our delivered price out of all reason. It will take some time to get back on a strong competitive basis with those lines being made in Canada now, but it seems well worth undertaking," stated another executive.

Adventure has been, and to a considerable degree still is, a characteristic of the automotive industry.

Tenacity and aggressive merchandising have made it the great business that it is.

This apparent barrier, as the Order-in-Council first appeared to be, is viewed by many American manufacturers as one more hurdle which can be cleared by the courage and imagination which have established the automotive business as the largest manufacturing industry in the world.

Steps are being taken by Canadian automobile agencies, affected by the recent Ottawa ruling providing a 20 per cent discount rate, to have the Dominion Government admit cars under the old rate which were on order at the time the ruling was promulgated.

Many dealers are seriously affected by the Ottawa order.

Cars, ordered before the new ruling came into effect, are being held in bond, and the companies are making application to Ottawa to have these admitted under the old rate.

Officials of some of the firms affected by the order plead in their petition that it is impossible for them to compete with other companies that either manufacture or assemble their product in Canada.

A special item will be inserted in the tariff in the forthcoming schedule to deal with the importation of used motor cars into Canada, according to the forecasts of the automobile dealers. Over a million cars in Canada today will eventually be turned in as used cars, dealers point out; therefore, if the market is to be kept from a deluge of used cars from the United States, they contend some special provision will have to be made. At present the customs officer at the port of entry has authority to appraise the value of a used car and collect duty upon that, but it has not proven feasible to impose a "dumping duty" owing to the difficulty of ascertaining the purchase price.

# JUST AMONG OURSELVES

THE joys of poking about one's attic on a rainy day, aimlessly stopping to reminisce over each old article turned up, are so common to all of us humans as to have become proverbial in our sentimental, comic and serious literature. Modern apartment dwellers like the writer have no such memento-filled attics to titillate their fancies, but the editorial equivalent is a lower desk drawer into which all sorts of unrelated clippings, memoranda and whatnots are dropped from time to time.

Just as the attic gradually fills up and weighs more and more on the mind of the householder, so does the editor's Maybe-Drawer. "Got to go through that and clean it out soon," says he, and promptly throws something else into it as he goes on to more pressing tasks.

But finally the drawer gets full. Then house-cleaning becomes necessary. And since this necessity coincides with the need for writing this page at the moment, won't you run through the contents of the drawer with us? . . . All right, let's go.

\* \* \*

THE motor boat people, it seems, are troubled with trick legislation just like the automobile and truck folks. Some state legislators, for instance, want to limit motor boat speeds to 10 m.p.h.

\* \* \*

THERE are still about 4,330,000 Model T Ford passenger cars on the roads of the U. S., Chilton's research department has just estimated, while total of Model A's in operation has risen to about 2,880,000.

Hurling curves into the future,

they estimate that in 1936 there will still be 792,500 Model T passenger cars running in this country. Which means that Model T replacement parts business still offers attractions to independents as well as to the Ford Motor Co.

\* \* \*

A. MURRAY wrote to N. Y. *Times* many months ago urging incorporation of a new word into our language—"Kitsch." It is a word now applied in Germany to all articles turned out to pander to a not very elevated public taste. Grew out of pre-war tourist custom of buying souvenirs in Munich, then Central Europe art metropolis. Tourists would buy almost anything and young artists sharpened their pencils and produced for the tourist trade. "Kitsch" represents the attempt of the Bavarian tongue to reproduce the minced syllables of an English spinster asking for a sketch.

If the word takes hold in the automotive industry it is most likely to be heard when a group of body designers get together behind locked doors to swap yarns about body art suggestions made by general and sales executives.

\* \* \*

WHAT would be the effect on higher priced free-wheeling cars should free-wheeling be adopted on the very lowest priced lines on the market? Somebody asked that question.

Answer probably is that slight immediate effects would be unfavorable, but that permanent, long swing effects would almost all be favorable. Most first car buyers are in lowest price groups

and, as they grow into higher price classes, naturally tend to reflect the driving education obtained in their first vehicles.

\* \* \*

PULLMAN CO. publicity booklet says that in 1929 there were in operation 8842 Pullman cars, which carried 33,434,268 passengers. The average daily mileage of these cars was 374 and the average passenger's trip 420 miles.

All Pullman car passengers road total of 14,058,525,111 miles—just about 72 trips to the sun and back.

Must have been close to the sun terminus on one of those trips when we occupied a lower berth one night last July—felt like it to us, anyhow.

\* \* \*

U. S. BUREAU OF MINES has long list of 35-millimeter moving picture films showing industrial and engineering subjects which it will lend free of charge to responsible groups asking for them. List includes "Story of Gasoline Motor," by Continental Motors; "Story of Storage Battery," by Willard; "Heat Treatment of Steel," by Hupmobile; "Story of a Spark Plug," by Champion; "Story of Lubrication," by Standard of Indiana; "Carbon Monoxide, the Unseen Danger," by Hupmobile; "The Power Within," by General Motors, and "Refining the Crude," by Gulf Refining Co.

\* \* \*

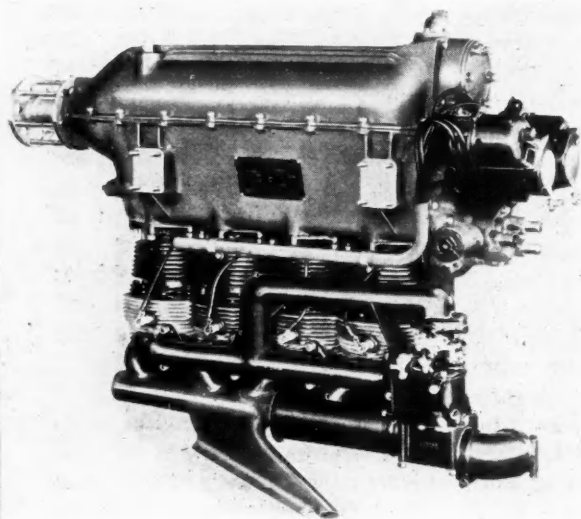
MANUFACTURERS of typewriters and parts sell principally through their own retail branches, Bureau of Census reports. Total 1929 sales were \$64,410,000. Of this, 67.6 per cent were sold through controlled retail branches. Sales to wholesalers accounted for 20.6 per cent; to retailers for 11.3 per cent and to users .5 per cent.

Which indicates the most important reason we know of to account for the fact that used typewriter prices and problems are better controlled than are used automobile matters.—N.G.S.

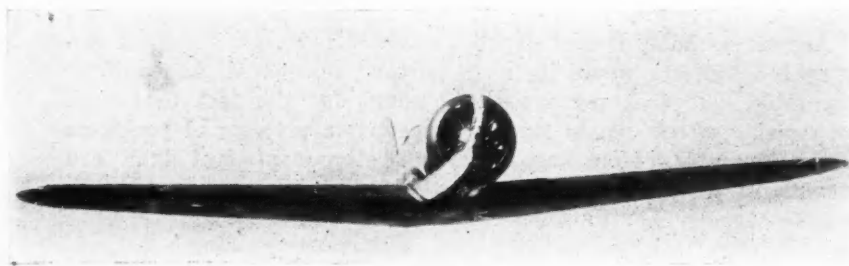
# Small Planes for Private Owners

## National Aircraft Show Exhibits

by Athel F. Denham



The Rover engine, exhibited by Michigan Aero Engine Corp., incorporates a number of refinements over previous models + +



April 11, 1931

**F**OLLOWING a year of bitter disappointments, a year of general retrenchment, of mergers, and of elimination of many of the weaker companies, the aircraft industry turns over a page of its history with the advent of the 1931 National Aircraft Show. Just as there have been mergers and retrenchments in the manufacturing field so there have been with the shows, the Detroit show being the only one of major importance for 1931 as against three last year.

Just what has the industry to offer as it enters a new year, as evidenced by the products at Detroit? In the transport field, there are faster ships of greater aerodynamical efficiency, and more metal construction. But perhaps more important, the show demonstrates that the industry is once more anxious to tackle the job of selling ships to the private owner. Prices are down in this class, so is the horsepower required to carry the one to four occupants for which these ships have been designed. These planes and their engines are soundly engineered, most of those shown having acquired Department of Commerce certificates.

In the aircraft engine field, attention is drawn by the many light airplanes and the power gliders to the smaller types, most of which have previously been described in these columns. These range from 40 to 100 horsepower and are generally of the low-speed type for reliability.

A few of the late developments to be found at the show, not previously described, might be cited here.

Others will be covered in the April 18 issue of *Automotive Industries*.

Below is the low-wing Lockheed "Orion" with a retractable landing gear. It is a two-place mail or sport ship

Wright Aeronautical Corp. has extended the new cylinder heads with their spark plug coolers to the Whirlwind 300 as well as the Cyclone series, for improved thermal efficiency. Spark plug coolers have also been adapted for the Wright Gypsy. Other improvements on the Whirlwind 300 and Cyclones include a new tangential type exhaust manifold which is standard equipment, effective in reducing back-pressure.

Szekely Aircraft and Engine Co. has been granted an approved type certificate by the Department of Commerce on its

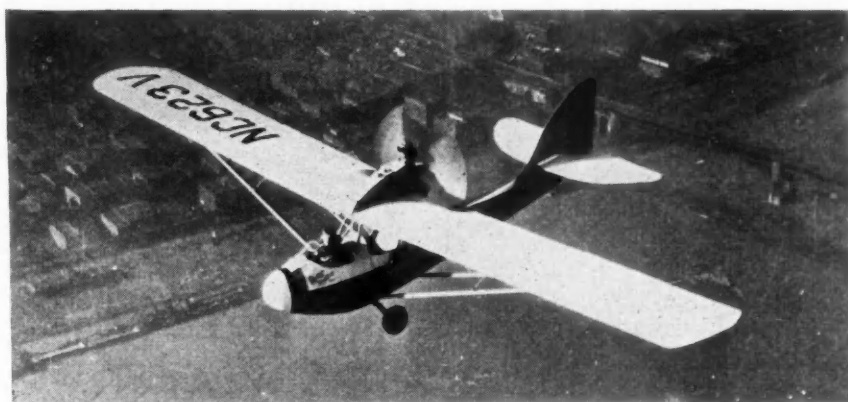
*Automotive Industries*



# Dominate at Detroit

## NEXT WEEK—

Descriptions of aircraft and accessories at the Detroit Show which were not available for this issue will appear in *Automotive Industries* next week, April 18.



The Curtiss-Wright Junior, a two-place pusher for the private flyer with Szekely engine, lists at \$1,490 + +

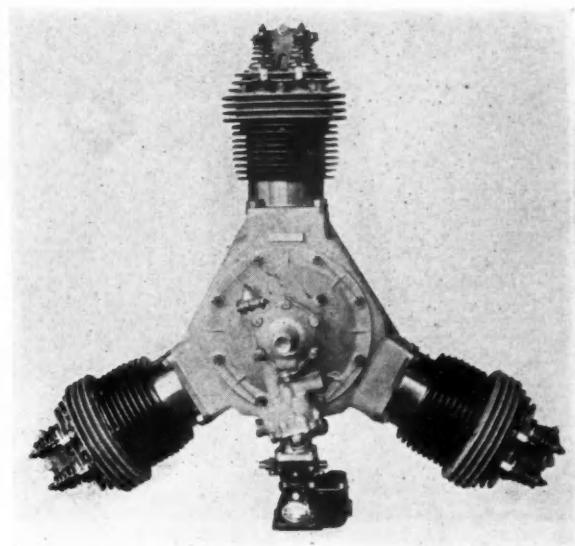
model O engine, a valve-in-head derivative of its L-head type, but developing 46 hp. at 1750 as against 30 for the L-head design.

Michigan Aero Engine Corp., in its "Rover" engine, has developed a new cylinder head for improved exhaust valve cooling, dustproof enclosure for the valve gear and felt pad lubricators for the latter. The induction system has been changed to improve distribution and raise the carburetor position for cowling. The carburetor also has an air heater with swivel inlet elbow. Ribbing is provided on the crankcase cover for better oil cooling and the breather has been changed. To eliminate oil pumping down the push rods, the cam followers have been redesigned. (The Rover is an inverted type engine.)

New engine developments by Kinner, Continental, Packard, Glenn L. Martin Motors Co. and American Cirrus (A.C.E. Corp.) have been fully described by members of the engineering staff in previous issues of *Automotive Industries*. The larger L-head engines under development by some manufacturers are not expected to appear at Detroit.

### Aircraft

The airplane manufacturer is continuing to borrow more and more from the automobile designer. A self-starter is found on one ship, brakes are becoming more and more universal, pressure gun fittings are provided for "chassis" lubrication. More attention is being paid to



Approved type certificate No. 70 has been granted the Szekely SR-3 model O valve-in-head engine. Develops 46 hp. at 1750 r.p.m.

silence in the cabins. Full cross seats are being adopted in open cockpit as well as closed ships, adjustable in a number of cases for the pilot. Some of the trends may be gleaned by a review of a number of the scheduled exhibits of new design airplanes.

American Eagle is exhibiting its new "Eaglet," listing at \$1,475, a two-place, due-control, low weight, high wing monoplane, powered with Szekely engine.

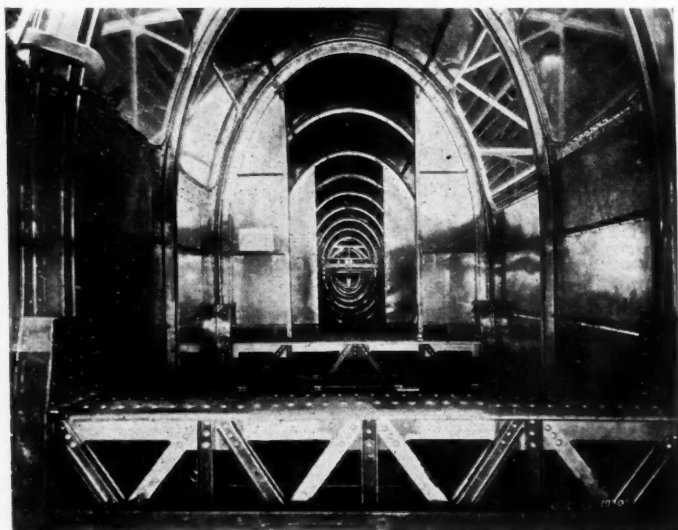
Bird Aircraft Corp. is introducing a new five-place



Pitcairn Aircraft, Inc., is showing its new, small Autogiro PAA-1, powered by a Kinner engine



This view of the Stout ship, built for the Buckley Aircraft Co., shows the clean fuselage and wide landing gear



The interior of the plane illustrated above shows the channel construction used + + + + +

cabin airplane to sell at slightly under \$5,000. The ship is powered with a 125-hp. Kinner and features a fuselage of air foil section. It is claimed that this ship has a stationary center of pressure. It will also be made available later with a higher horsepower engine. The company is also bringing out an open cockpit model powered with a Jacobs engine and fitted with a N.A.C.A. cowling. Improvements in aerodynamic efficiency is the major program for this company.

Chance-Vought Corp. is exhibiting its model V-50



The American Eaglet (American Eagle Mfg. Co.) is another low priced ship listed at \$1,475, and is powered by a Szekely engine

Corsair, details of which are not available at the present time.

Consolidated Aircraft Corp. exhibit includes a new model 17 Fleetster powered with a series B Hornet developing 575 hp., a new two-place Fleet refined for sale to the private owner, and a three-place Fleet with a wider front cockpit and similar refinements including brakes, steerable tail wheel, flooring, bulkhead between seats, baggage compartment and additional gasoline capacity. Both have been cleaned up in design to increase their speed over that of the standard training ship.

Curtiss-Wright Corp. is exhibiting four new ships, including the Junior, a two-place lightweight pusher, at \$1,490; a low-wing, two-passenger "Coupe" at \$3,775; a new Travelair Sport trainer at \$3,500, and a three-place Travelair Sportsman at \$4,995. The Junior is powered with a Szekely 43 hp. engine mounted above the fuselage behind the trailing edge of its monoplane wing. The occupants are located ahead of the wing for visibility. It has a top speed of 80 m.p.h. and lands at 28, it is claimed. The fuselage is of chrome molybdenum tubing with wide wing structure. Ailerons are balanced.

Weight empty is 555 lb. with a gross weight of 975 for a wing loading of 5.2 and a power loading of 22.2 lb. Estimated gasoline consumption is 25 miles per gallon and cruising range is given as 200 miles.

The "Coupe" is powered with a Wright Gypsy 90-hp. engine and is designed for a maximum speed of 110 m.p.h. The cabin seats two side by side above the low-braced monoplane wing. The cabin window in the top raises for ventilation. The brake control in this ship is designed so that brake application is obtained either on both wheels simultaneously or on each wheel separately by means of the rudder control. A novel feature of the wing is its main beam, which is of chrome molybdenum alloy steel. It supplants the usual two braces and extends from the leading edge to the center-of-pressure point. It is claimed that the wing curve has been worked out for a constant center of pressure. Wing loading is 9.29 and power loading 19.4 lb., total gross weight being 1747 and weight empty 1136.

The Travelair Sport Trainer is also powered with a Wright Gypsy, and has many parts interchangeable with the Sportsman and also with similar other parts

of the Trainer itself. Weight, empty, is 1075, with a gross weight of 1725 lb., wing loading of 8.15 and power loading of 17.72 lb. Landing speed is stated to be 44 m.p.h. with a high speed of 130 m.p.h.

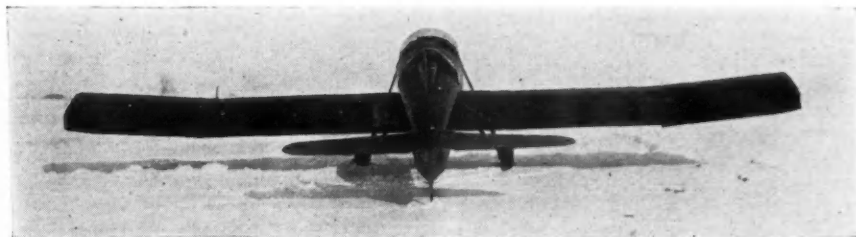
The Sportsman is a three-place open cockpit biplane powered with a 185-hp. Curtiss Challenger engine. It is said to have a top speed of 120 m.p.h. and lands at 48. Ailerons are used on the upper wings only, attached to the wing beam. Zerk fittings are attached to all points requiring lubrication, and duralumin inspection plates with snap fasteners are provided at various points for the control system. Engine cowling is of the automobile type, only two spring catches being used. The front cockpit has a full cross seat of the automobile type, and also contains a strap cradle for the carrying of luggage in addition to the baggage compartment behind the pilot's seat. Wing loading is 9.75 and power loading 14.0 lb., weight empty being 1569 and gross weight 2600.

Forming the exhibit of the Detroit Aircraft Corp. is this company's new low-wing Orion, a development from the Lockheed Sirius. It has a landing gear completely retractable into the wing when in flight, the elimination of the drag of this unit being credited for increasing the top speed of the ship to 210 m.p.h. for the two-place open cabin sport ship. This will be made available also as a seven-place transport.\* The company also has a new, lower drag, landing gear worked out for the Lockheed-Vega, although the latter gear is not retractable. This ship is to be used by John H. Mears in a new 'round-the-world dash attempt.

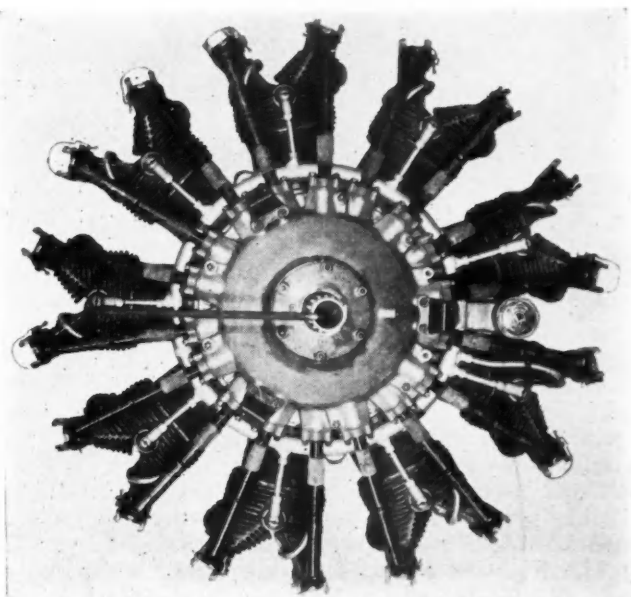
The Ryan brougham is to be exhibited equipped with newly designed wheel fairings and Townend ring cowl.

Douglas Aircraft Co. is to exhibit its new Dolphin, designed expressly for commercial use, a new departure on the part of this company. It is a twin-engined monoplane amphibian for six, exclusive of pilots. The hull is of sheet duralumin with channel frame. The nacelles for the two Wright 300-hp. engines are joined by a small air foil section, which is said to impart sufficient additional lift to make possible an increase in the maximum speed and decrease in the minimum speed of the ship of 2 m.p.h. Wing tip floats are provided on the full cantilever wing. Wing loading is 15.5 and power loading

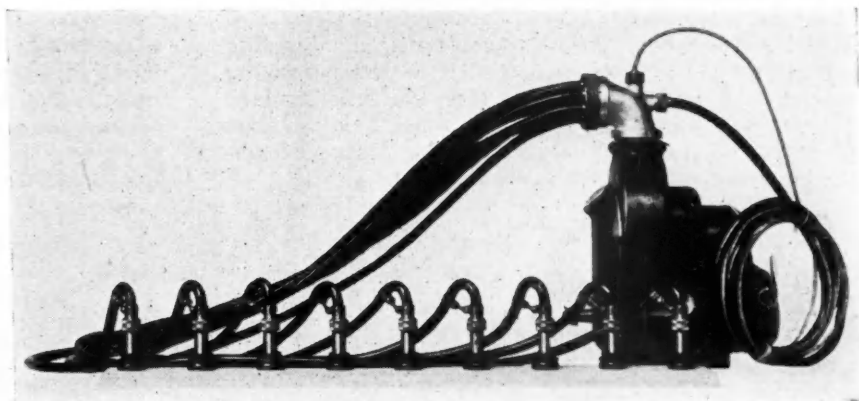
Higher top speed for the Lockheed-Vega is obtained by a new landing gear shown here. In this type the fuselage is of all-metal construction + +



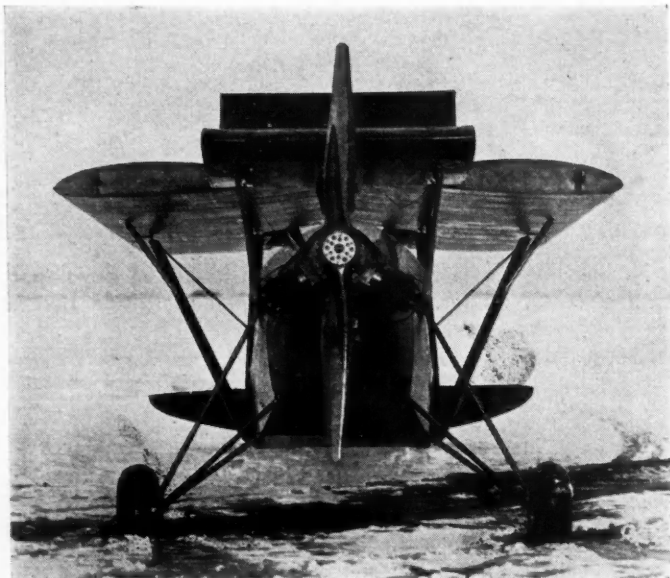
The Nicholas-Beazley NB-4 (shown above) has been developed from the NB-3, holder of the light airplane altitude record



In the accessory exhibits, radio shielding devices are exhibited by a number of companies. The illustration above shows the installation of the Breeze Corp. on a Lycoming engine, while the one below shows a design developed by the Packard Electric Co., the magneto being a Scintilla + + + +





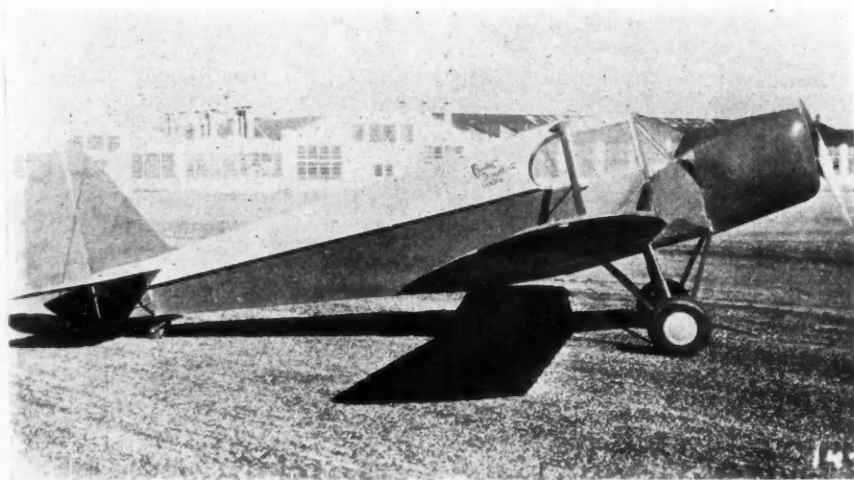


Nicholas-Beazley also introduces a low-priced training ship with folding wings. It lists at \$1,490

13.3, figured on a gross loading of 8000 lb. Empty weight is 5606. Total wing area, including the auxiliary air foil, is 600 sq. ft.

Great Lakes Aircraft Corp. is making its Sport Trainer available with an inverted Cirrus engine, a model of which is to be at the show.

The Nicholas Beazly low-wing NB-3, which set a new altitude record for light planes at the St. Louis show last year, has been refined and appears as the NB-4 equipped with either a Warner, Jr., or Lambert motor. The wings, instead of being suspended from the lower longerons, are now suspended from fittings in a built-in recess in the fuselage. This has raised the wing about ten inches, with the bottom in line with the longeron. It has enabled a reduction in length of all fuselage members. The fuselage itself is now faired to resemble monocoque construction. Landing gear struts have been shortened with the new wing construction and airwheels and brakes are standard equipment. Pilot's seat has been made adjustable. An increase of approximately ten per cent in performance is expected from the new ship.



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The company has also on exhibit a new folding wing trainer listing at \$1,490. It is side-by-side two-seater with a cruising speed of 70 m.p.h. and a landing speed of 31. The weight, empty, is 550 lb. and gross weight 960. It is powered with either a Continental A-40 or a Szekeley engine.

Northrop Aircraft Corp., a division of United Aircraft, is exhibiting its six-passenger transport of all-metal construction. The pilot's cockpit is located back of the cabin in the top of the monocoque fuselage. A photograph of the ship accompanies this article. The "Alpha" is powered with a Pratt & Whitney Wasp of 420 hp. with which a top speed of 170 m.p.h. and a landing speed of 60 m.p.h. is obtained. Wing loading 15.25 and power loading 10.7. Gross weight is 4500 lb. and useful load 1910.

Pitcairn Aircraft, Inc., in addition to its standard autogiro, is exhibiting a smaller ship of this type designed for the private owner. This has a two-place cockpit and is powered with a 120-hp. motor.

Kellett Aircraft Co. is also exhibiting an autogiro at Detroit.

Rearwin Aircraft is showing a new lightweight, two-place, open-cockpit monoplane at the show, powered with a 40-hp. engine, in addition to its other biplanes.

Stearman is introducing a new trainer, the Cloud-boy, at the show. It is powered with a Wright 165-hp. engine, with a Continental optional. The company states that a 300-hp. engine may be installed under the A.T.C. rating for sport use.

One of the most interesting ships at the show is exhibited by the Stout Engineering Laboratories. Called the Skycar, it is a two-passenger, tandem, high-wing, all-metal monoplane in which it has been attempted to duplicate the ease of handling of an automobile. The controls, for instance, include a self-starter button operating a small electric motor. The Rover engine, with which it is powered, is located back of the cabin, from which position it is expected less noise will be transmitted into the cabin. Wing tip ailerons are provided on this ship, which has a top speed of 100 m.p.h., it is claimed. It weighs approximately 1000 lb. empty, with provisions for 24 gallons of gasoline and 20 lb. of oil, sufficient for 4½ hours' cruising. The landing gear is also unusual, there being in addition to the main wheels, on 9-in. oleos, a tail

wheel and center wheel under the forward part of the cabin. When landing the ship, it is to be tipped forward onto the front wheel removing all lift from the wings. To prevent damage in case of a hard landing by a novice, the fuselage has a 10-in. keel. A headlight mounted in rubber is provided in the front of the cabin. Tail surfaces are carried on framing from the rear of the

A two-place closed cabin low wing monoplane is introduced by Curtiss-Wright. Known as the "Coupe" and powered with the Wright Gypsy, it lists at \$3,775

Automotive Industries

cabin. No announcement has been made by Mr. Stout as to the company which will manufacture this ship.

Another ship which has been designed by Mr. Stout is a low-wing, all-metal ship produced by the Buckley Aircraft Co. of Wichita. It is priced at \$12,500, and is of monocoque design with split landing gear, accommodating five persons.

Waco Aircraft Co. introduces a new cabin ship, which is unusual by virtue of its biplane construction, a design which, it was thought, had virtually been abandoned. Waco, however, has obtained some rather good performance figures with this ship, top speed attained in tests being 118 m.p.h. with a 48 m.p.h. landing speed. These were obtained with a 68-lb. overload, with which the wing loading was 10.4 and power loading 16.6. The span of the upper wing is slightly over 33 ft., with a lower wing span of approximately 28 ft. Disposable load is 977 lb. The ship is powered with the latest Continental engine which has been adopted as standard equipment by this company.

The Swanson Aircraft Co. of Hopewell, Va., is exhibiting its new two-place cabin monoplane.

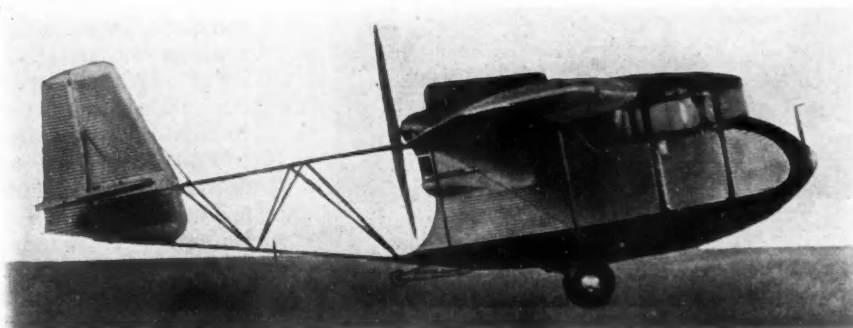
While no summary of accessory exhibits can be attempted at the time of writing, since scheduled exhibits have been cancelled and news ones added, a few of interest to the automotive industry generally might be mentioned. Many of the "new" exhibits at the show have previously been described in these columns.

Radio shielding for spark plugs has gained the attention of a number of manufacturers, B.G. Corp., Breeze, and Packard Electric being among those exhibiting shielding designs and installations.

Variety Mfg. Co. of Dayton, Ohio, has a new airplane wheel and brake at the show. This brake has a single ring type, four-lobe cam operated by a rack and pinion mechanism, the rack being part of the cam.

(Turn to page 587, please)

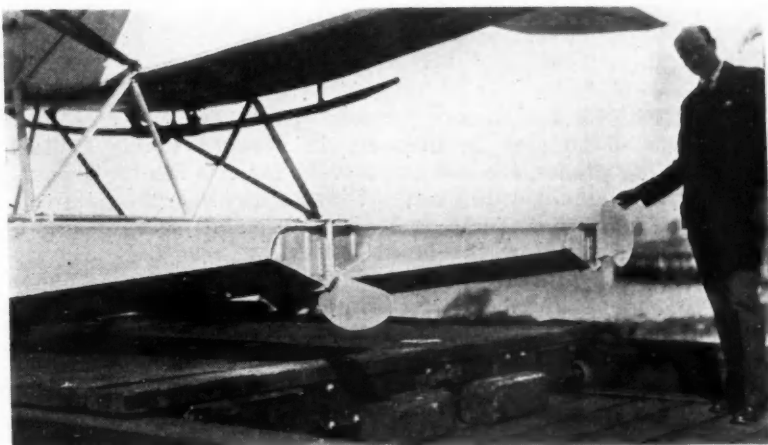
The "Sky Car," designed by William B. Stout, is a small plane with a two-place cabin. It is a full cantilever, high-wing monoplane of all-metal construction. The span is 43 ft. + + +



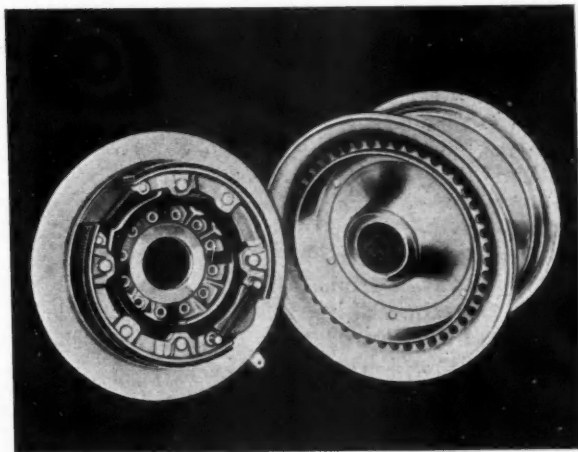
Automotive Industries



The Northrop Aircraft Corp. introduces its all-metal, six-passenger Alpha



EDO Aircraft Corp. has available new automatic rudders for its floats. These will be effective only at low speeds and kick up if they hit an obstruction



A new airplane wheel incorporating a cam operated brake, is shown by the Variety Mfg. Co. of Dayton, Ohio + + + + +

# Japanning and Enameling Plant Meets With Automatic Gas-Fired Ovens

All air admitted to the dipping enclosure is filtered and washed while its temperature is controlled by unit heaters + + + + +

**E**NAMELING or japanning metal parts has become so popular in industry in general that jobbing plants, erected exclusively for this kind of work, are no longer a novelty. Dipping and baking are the major operations and the equipment has gradually grown from the hand method with small periodic ovens to giant installations in which the work is dipped and carried through the ovens on continuously moving conveyors. One of the modern plants of this kind is that of the Stone Enameling Co., Detroit, Mich., where the bulk of the work includes finishing automotive parts and other miscellaneous steel stampings. Three semi-automatic japanning ovens and one that is fully automatic constitute the principal equipment and afford all the flexibility required by the fluctuations in production schedules peculiar to jobbing plants.

The ovens are heated indirectly, separate gas-fired heaters being employed and the hot products of combustion forced into the ovens with motor fans. The work is first put through a burnoff oven to free of grease, etc. This oven, a box-like structure of sheet steel and asbestos, is heated directly, two long gas pipe burners located close to the bottom being utilized. A temperature range of 600-700 deg. Fahr. is used and the burn-off period varies from 15 to 20 min. This treatment is followed by sanding and wiping. The work is hung on steel racks with casters for charging and discharging in and out of the oven.

First coat work is baked on in the three semi-automatic ovens which are also of sheet steel and asbestos insulation. With doors at both ends these ovens are equipped with overhead, motor-driven conveyors consisting of two parallel end-

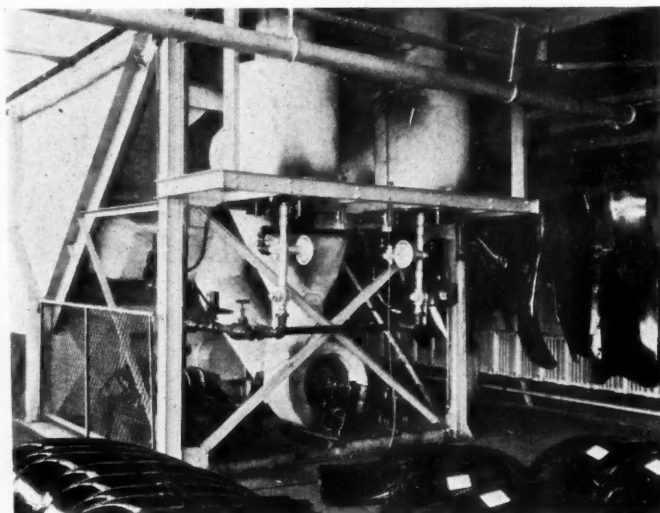
less chains with rods between on which the work is hung. These are all in the horizontal plane and each extends 25 ft. beyond each end of its particular oven, the lower portion running through the oven close to the top and returning just above the oven.

Operators dip the parts in tanks of dull finish japan (S.G. 29 deg. Baume) and hang them on the conveyor rods. When these are full they open the doors at both ends of the oven and start the motor which moves the conveyor along, the wet work entering the oven and the load that has just been baked moving out on the other end. Operators then remove the baked parts and hang them onto an overhead monorail conveyor which takes them to the dip tanks of the second coat oven.

The second coat is applied and baked in the fully automatic unit which includes an oven of the A type constructed of sheet steel with asbestos insulation. The entire unit, from dip tank to discharge end of oven, or the distance between the sprockets of the traveling conveyor, is 105 ft. The oven consists of two end parts which rise at a 45 deg. angle from the floor and terminate in a horizontal section 14 ft.

above the floor. With this A type of structure most of the heat is trapped in the top for effective use.

A space about 60 ft. long, on a line with the oven and including the dip tank, is glassed in to the width of the oven. This forms an airtight room in which to dip the work and hang it onto the oven conveyor, thus eliminating the possibility of dust settling on it. All air admitted to this enclosure and to all of the first coat department, is filtered and washed and its temperature controlled by unit gas heaters. The oven is of the counter-flow

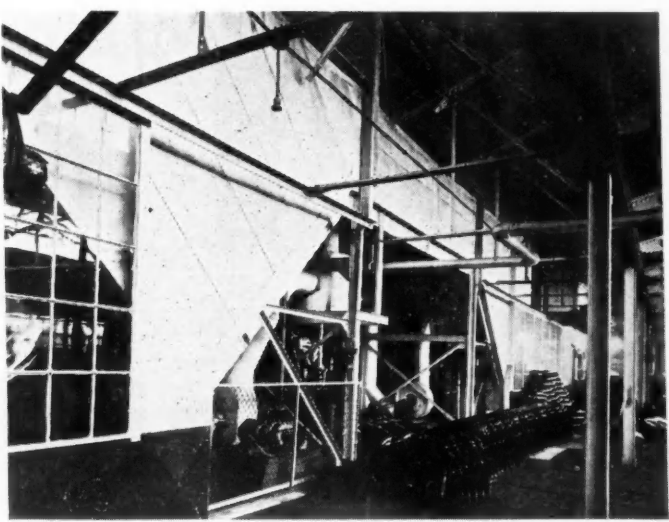


The ovens are of an A type of construction with the heaters and ventilators below the apex. This view shows part of the ventilating system + + + + +



# Varied Schedules

by  
**J. B. Nealey**  
American Gas Association



The ends of the oven rise at an angle of 45 degrees from the floor and are connected by a horizontal section 14 feet above the floor, where the heat is trapped for effective use + + + + +

the main line and only enough to support a small flame comes through a by-pass. Conversely, when the temperature drops the valve automatically opens to restore the hot flame. It has been found that one heater is sufficient to maintain a baking temperature of 475 deg. Fahr. during the greater part of the time. In fact, the heaters run on the low flame approximately 60 per cent of the time. The work remains in the oven for a baking period ranging from 45 to 60 min., according to the class of work. On starting up this oven cold, say Monday morning, the burners are not lighted until the conveyors and work is going through the dip tank. This indicates the quickness with which the oven heats up. A blower delivering 2000 cu. ft. of air per min., is used to force the air through the heater into the oven.

The dip tank is of the inverted apex type, 21 ft. long on the top, 8½ ft. wide and 8½ ft. deep. Beneath is a fire tank 6½ ft. in diameter and 18 ft. long and a clarifying system which includes one straining tank with bronze screens and a pump direct connected to a 1 hp. motor, for circulating the japan through the filter. The japan used for the second coat is of 30.5 deg. Baume.

Fire protection for the entire plant is had through a carbon dioxide installation with fusible links at key points which let go if the temperature rise exceeds 70 deg. Fahr. per min. The same system automatically shuts down all machinery and closes all fire doors in the plant.

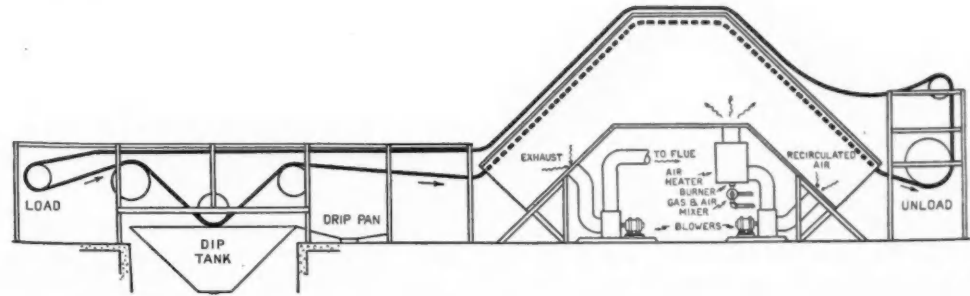
Work coming out of this oven is usually loaded directly for shipment, a curtained opening in the oven room wall being used to pass it through directly onto the loading platform.

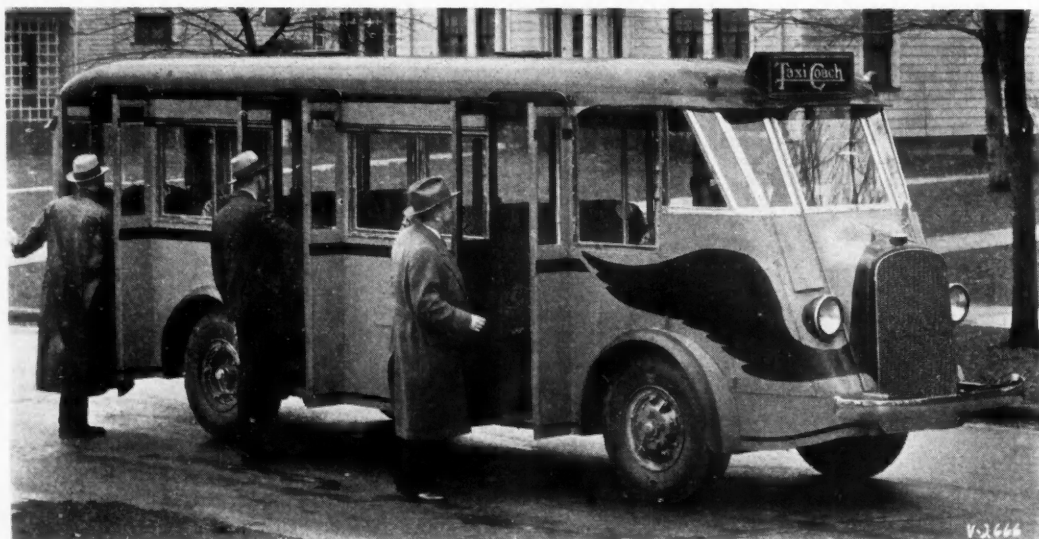
type and the neutral point is close to the charging end.

It is heated with two cross horizontal tube heaters, fired with gas, entirely separate from the oven, and located beneath it. Each is heated with a gas burner and venturi tube, air being supplied at high pressure and the gas inspired in the proper ratio for complete combustion. Recirculated air is drawn through the tubes where it is heated and is then blown into the oven which it heats in turn to 450-475 deg. Fahr. The burner and venturi are all one casting which is bolted into the front of the heater. The heater is circular in shape, formed of sheet steel and insulated to prevent loss of heat through radiation.

Temperature is under constant control through two indicating automatic temperature controllers. These are connected with solenoid operated valves in the air supply line. When the temperature rises above the predetermined point the valve closes in

A motor-driven conveyor extends 25 feet beyond each of the ovens with the lower portion running through the oven close to the top and returning just above + + + + +





The 17-passenger Taxi-Coach has three doors leading to as many compartments each with six seats. It is designed for comfort and convenience, and has an overall width and weight practically the same as one of the larger private cars + + +

## New Twin Coach Offering Meets Private

THE "Taxi-Coach," the latest engineering development of the Twin Coach Co. of Kent, Ohio, was given its first "public" demonstration last week. Basically the vehicle is an attempt to overcome or reduce some of the following major obstacles confronting the transportation system operator: (1) Lack of flexibility due to high weight. (2) Lack of ease of handling due to large width (in traffic). (3) Loss of time while loading and unloading, and collecting fares. (4) Competition given transportation systems by the private automobile.

The last, of course, might be said to summarize all the foregoing problems, and in the Taxi-Coach, Mr. F. R. Fageol and his organization have attempted to reproduce the advantages of the individual passenger car insofar as flexibility is concerned.

It is a 17-passenger vehicle, as at present constituted, with a virtually standard tread, with practically the same overall width as a large passenger car, and with a weight not greatly exceeding our heavier private automobiles. There are three doors to the vehicle, compressed air operated, either individually or simultaneously by a control at the driver's convenience. Each of these doors leads to a separate compartment with two cross seats, one facing forward, and one back, for a total of six passengers. Since wheel housings are located between the back-to-back seats, the seats themselves can be extended full width for an unusual amount of room. Vertical stanchions, forming part of the framework of the Taxi-Coach, divide the seat into three individual seats.

While the idea of full cross seats in buses is not new, it was abandoned some time ago due to the loss of time in the collecting of fares. This has been overcome in the Taxi-Coach by the installation of a remote fare collection system from each seat. In the previously mentioned stanchions there are coin-slots, one for each seat. Coins dropped into these close an elec-

trical circuit, tripping a compressed air plunger which hits the coin upward and through an individual duct into a coin box having a separate compartment behind glass for each seat, so that the driver can observe the type of coin, and whether the occupant has paid or not. A light corresponding to the seat lights on this box as soon as the passenger sits down. Between each of the two rear compartments and the driver's seat there are also tubes through which a box is shuttled by compressed air, similar to department store installations, for change-making.

Below the coin box at the driver's left is a Johnson fare register and coin separator.

By thus eliminating the necessity of collecting fares at the exit or entrance of passengers, and by providing one door for every six occupants, loading and unloading stops are reduced in duration. Higher frequency headways can be attained by the use of a smaller vehicle of this type. It is the contention of the Twin Coach Co. that the usual motor-coach in urban work carries an average of around 15 passengers or less.

With the light weight of 7500-8000 lb. for this vehicle, and a 100 hp. Hercules engine identical with those used in the Twin Coaches, flexibility comparable to that of the average passenger car is provided. In fact the vehicle has a top speed, it is said, in excess of 60 m.p.h. By using only cross seats, moreover, higher rates of acceleration and deceleration can be used without discomfort to passengers.

The light weight of the unit has been made possible by an unusual design. The chassis frame of the Taxi-Coach is of the double drop type and only about 4 in. deep. In the roof however there are 2 in. deep T-section frame members. These are tied to the main frame by the aforementioned stanchions in the form of a box construction. The stanchions at the seats are carried on cross members of the chassis and roof

frames. Additional stanchions between the seat backs attach directly to the main frame members. At the front end there are diagonal tie-braces between the roof members and the chassis frame, at the windshield. The structure is said to be designed so as to produce only tensional or compression stresses in the stanchions, bending loads being absorbed by the body paneling, similar to the method of construction used in metal airplanes. Carrying this last analogy further, considerable duralumin is used in the body structure, roughly 75 per cent of the body aside from the framing structure being of this material, reflected in the light weight of the finished vehicle.

To further relieve stanchions and frame members of stresses, stanchions are located approximately at the spring ends. It will be noted that the stanchions serve a triple purpose: body frame work, hand holds, and fare collection mechanism container. Some of the stanchions—those carrying lesser loads according to

ever, 15 in. to provide ample tire cross-section with a small wheel housing. Brakes are Westinghouse air operated. The air-operated doors are hung on piano-type hinges without jambs, and while inherently narrow, are of the double type for the minimum of projection over the curb when open.

The small width fenders which are used at the wheel housings are of rubber, as on the larger coaches manufactured by the Twin Coach Co.

For intercity work it is intended to develop a type with all seats facing forward. Price of the complete vehicle is estimated as around \$6,000 or slightly higher, complete with the fare collection system.

As to the possible uses immediately of this type of vehicle, Mr. Fageol suggests making use of its high degree of flexibility by providing parking lots within 2 to 2½ miles of the downtown district, where owners may park their cars and receive for 15 or 20c two tokens good on the Taxi-Coach, relieving downtown parking, without having the automobile owner sacrifice time in getting to and from downtown sections. The automatic remote fare collection of course also makes the application of a zoning system with this vehicle practical, since the driver can dump all coins at one time (in addition to each one individually) and call for new fares.

Mr. Fageol further sees this type of vehicle as taking over all the "retail" handling of the city transportation system, leaving to the street cars and large buses the wholesale or peak hour part of the business, which is the portion they are most economically or conveniently geared to handle, according to Mr. Fageol.

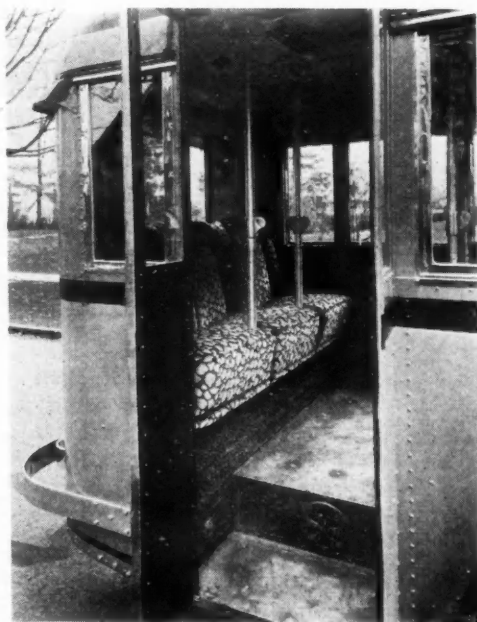
He further estimates the cost of operation of the Taxi-Coach, including all items such as depreciation, interest, overhead, etc., as 13.25 cents per mile or roughly 2½ to 3 cents per mile more than that of the average taxicab.

## Car Competition

structural analysis—are also made of duralumin.

Another item that is worthy of note in the general arrangement of the Taxi-Coach is that no space has been wasted for the engine in the overall length. The radiator is immediately ahead of the windshield, with the driver sitting directly over the powerplant and transmission. On either side of him is a rearward facing seat for passengers. The driver's seat and the flooring below are readily moved for access to the powerplant. The latter is removable from the front end, by sliding it out after removing the radiator. Accessories are accessible from two cowl hoods, one at either side. This includes ready access at the right to the back of the instrument panel, and its wiring, the instruments being located to the right of the driver, and virtually at the floor of the Taxi-Coach.

The steering column projects down at an angle toward the radiator, with cross controls to the left side and down to clear the engine. Axles are conventional Timkens. Wheels are of a new small size, how-



No space has been wasted in the overall length for the powerplant. The driver sits directly over the engine. A remote control fare collection system extends to the stanchions between the seats



# Pressure Overcomes Elasticity of

Professor Kutzbach, in discussing joints between different elements which constitute an assembly, classifies them as "by material," "by force" and "by form."

IN a discussion of the principles of mechanical joints in the V.D.I., Professor Kutzbach states that in applied mechanics we ordinarily consider only machine elements, but in practical work it is necessary to investigate also the joints between the different elements which constitute an assembly. We may distinguish between three kinds of joints between mechanical elements: by material (welding or brazing), by force and by form. It is practically impossible to obtain a rigid joint by form only, and pressure is always necessary to eliminate play due to the elasticity of the material. Assembly by force may be by longitudinal tension (rivets, bolts), by annular tension (hoop, collar, cone, clamp), or by torsion. This latter method has not been much employed in the past, and may therefore be illustrated by an example (Fig. 1). One bearing of a hub is assembled with its shaft by means of splines parallel to its axis, the other by helical splines. By forcing the two bearings apart by means of screws, or forcing them together by means of a shoulder and a nut on the shaft, a torsional effect is produced on the bearing as well as on the shaft.

In all assemblies held together by force there are a

part under tension, a part under compression and a joint surface or bearing surface. The joint surface may be subjected only to pressure or simultaneously to the pressure due to the force which holds the parts together and to the force which tends to make one part slide over another. In order to resist this force tending to produce a sliding motion, dependence is sometimes placed on friction, sometimes on offsets or on shoulders, and sometimes on both means. In all three cases the maximum resistance is obtained if the entire bearing surface or contact surface is equally stressed. To that end it is necessary that the tensioned or compressed parts of the two pieces of the assembly have forms of equal resistance in the plane of assembly (Figs. 2 to 4).

A practical example of forms of equal resistance is furnished by the AEG turbine blades, Fig. 5.

In order to prevent an assembly by form from developing play, it is necessary to place it under tension, either in the direction of the force on it or transverse thereto. The latter method is the least advantageous from the point of view of quantity of material required, but the first mentioned is often hard to apply. If it is desired to use screw threads it is necessary that the screw and nut both have forms of equal resistance.

Fig. 6 shows a screw thread of this type used for assembling a piston with a piston rod. Figs. 7 and 8 show the method applied to assemblies of tubes. It will be noticed that screw threads of

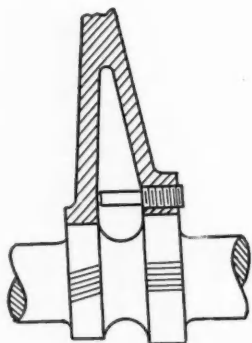


Fig. 1 (above)—Diagram of an assembly by torsion + + +

Fig. 3 (right)—Diagram of forms of equal resistance in an assembly of tubes +

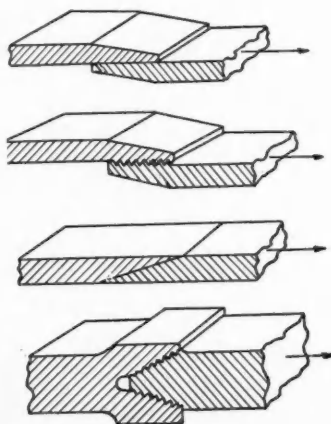
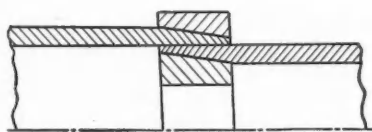


Fig. 2 (right)—Diagrams of forms of equal resistance in joints between plates

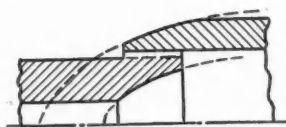
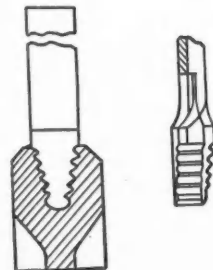
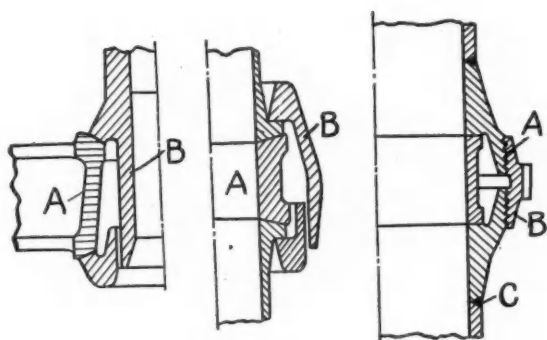


Fig. 4 (above)—Diagram of forms of equal resistance in an assembly of two hollow shafts

Fig. 5 (right)—Diagram of forms of equal resistance in the assembly of AEG turbine blades + + +



# Materials in Mechanical Joints



Figs. 6-7-8 (above)—Diagrams of forms of equal resistance for threaded parts (A, part in compression; B, part in tension; C, weld)

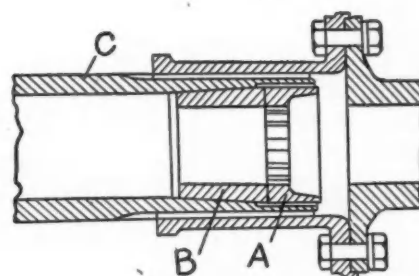
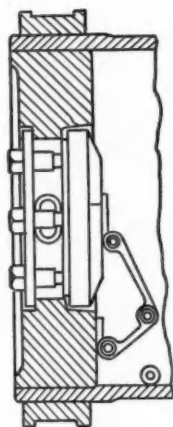


Fig. 10 (above)—Diagram of joint for hollow shafts (A, nut; B, cone; C, shaft) + + +

Fig. 9 (left)—Diagram of joints of boiler tubes in Loeffler high-pressure steam boilers + + +

Fig. 11 (right)—Diagrams of forms of combined form and force joints + +

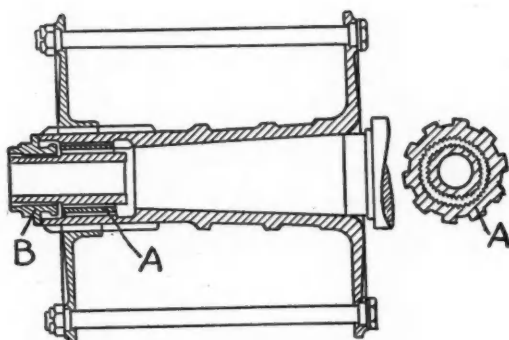
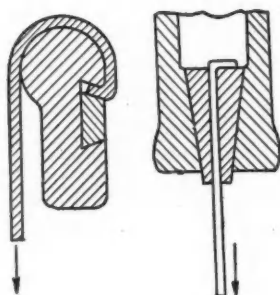


Fig. 12 (above)—Diagram of joint for aircraft propeller (A, splined sleeve; B, nut for forcing cone home) + +

saw-tooth form are used, the object being to prevent annular tension.

Transverse tension is most frequently obtained by means of collars of conical form or split sleeves, and sometimes by clamp rings. An example of the use of clamp rings (shrunk on) is given by the method of fixing the tubes in the Loeffler high-pressure boiler (Fig. 9). Fig. 10 illustrates a typical method of assembling hollow shafts. The coupling sleeve is assembled with the shaft by means of splines parallel

with the axis of the shaft, and the shaft is expanded by means of an interior cone.

Sometimes an assembly by form and an assembly by force are employed in series, the last-mentioned acting as a brake which reduces the load on the former. An example is shown in Fig. 11. The two systems also may be used in parallel, as shown in Fig. 12, which represents the method of securing propeller hubs on the crankshafts of engines of the Bayerische Motoren Werke. This assembly is effected by drawing together a cone and a sleeve, the latter being splined both inside and outside, the splines on the sleeve engaging with splines on the crankshaft and on the inside of the propeller hub respectively.

## National Aircraft Show Exhibits Small Planes for Private Owners

(Continued from page 581)

This cam rides on four roller bearings, and operates the brakes without attempting to produce self-energizing action. It is illustrated herewith.

Metallurgical Laboratories, which manufacture many tubular steel parts for aircraft manufacturers, is exhibiting exhaust stacks and manifolds.

Air Reduction Sales Co. is to give demonstrations of "freezing" such parts as valve seats, spark plug inserts into place in cylinder heads, etc., by shrinking them with liquid air rather than by expanding the head.

EDO Aircraft Corp. is exhibiting a new type of automatic water rudder for seaplanes. This rudder is effective only at slow taxiing speeds, kicking back and up at high speeds, or if an obstruction should be encountered.

Parker Appliance Co. is displaying a new flexible coupling.

Among manufacturers of noise insulating materials, Haskelite Mfg. Corp. exhibits its Haskelite Balsa.

# Maximum Load of 9000 lb. per Wheel

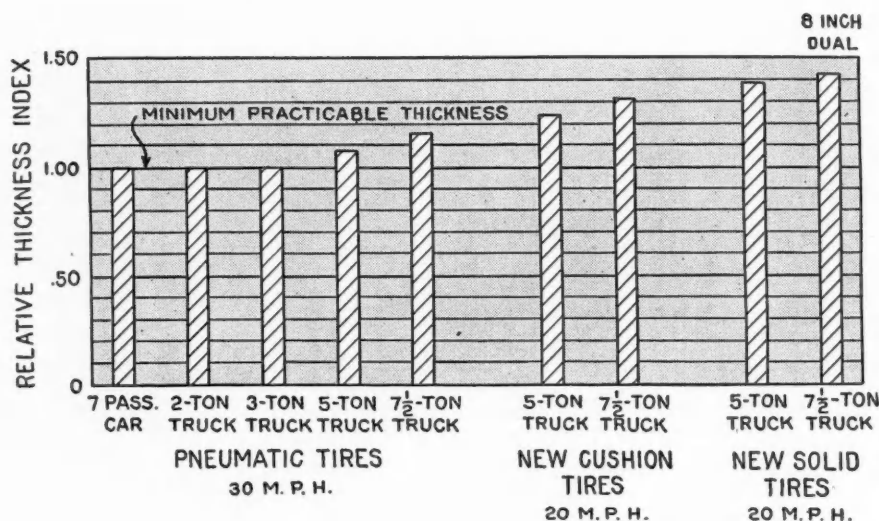


Fig. 2—Relative thicknesses of concrete road slab required for various classes of motor vehicles (based on the surface smoothness of a fair sheet-asphalt pavement)

Investigations made by the U. S. Bureau of Public Roads indicate that motor buses and trucks as well as other vehicles operating on improved rural highways should be limited to pneumatic tires

IN HIS testimony before the Interstate Commerce Commission at Washington, D. C., in March, Thomas H. MacDonald, chief of the U. S. Bureau of Public Roads, said that whereas the earlier improved roads were designed largely by guesswork, during the past ten years the Bureau has been conducting experiments, tests and studies to develop the necessary information which will permit of designing highways in the same way as bridges and buildings are now designed, in accordance with the loads to be carried.

One chart displayed by Mr. MacDonald, and which he referred to as an isodynamic chart, shows the lines of impact for various types of tires on a particular street in the City of Washington. The standard paved highways, which are now being built on the main thoroughfares of the nation, consist either of a rigid base with a bituminous asphalt mix or a brick or stone-block top, or of concrete slabs without other covering. The strength of that slab, whether it is the base or the surface itself, must not only be sufficient to carry the static load of the wheel of the motor truck and bus, but must carry the impact. Therefore, the design must be based not on the load on the wheel itself but on the blow which that wheel delivers to the road when operating over it. The isodynamic chart shows the influence of impact with various types of tires. With a pneumatic tire a wheel load of 9000 lb. will produce an impact of about 12,500 lb. With a worn solid tire the same wheel load will give an impact of well over 21,000 lb. or almost double the impact with the pneumatic tire.

The impact of the wheel is taken as the load which the road must be designed to withstand. Other factors that must be taken into account in the formula

for the stress in the slab are the modulus of subgrade reaction and the area of contact between tire and road. As the radius of the surface of contact between tire and road increases, the stress in the outer fiber of the slab decreases; this is an extremely important point which in the past has been entirely overlooked in comparing the effects of passenger cars, trucks and buses in passing over the highways.

The Bureau of Highways believes that a 9000-lb. wheel load is about the load for which highways should be designed. In the case of pneumatic tires (of the high-pressure type) the load on the wheel is transmitted to the highway through a larger area than in the case of solid tires, and the result, of course, is a lower surface stress in the slab. In the experiments of the Bureau it was found that a 7-passenger car with a rear-wheel load of 1750 lb. gives an impact load of 5100 lb. The rear wheel of this car carried a single 7 1/2-in. tire and the area of contact was 35 sq. in. The road slab naturally is subjected to the greatest stress when the wheel is at the very edge of it—half on the slab and half off. For this condition the radius of a semicircular contact area may be taken as 4.7 in., while for the case of the wheel completely on the slab it may be taken as 3.3 in. Then for a slab of 7 in. thickness at the edge and 6 in. thickness at the center, the stress is 226 lb. per sq. in. at the edge and 218 lb. per sq. in. at the center. These are the thicknesses of slab required for standard passenger cars and light trucks running on pneumatic tires. Road slabs should not be built much thinner than 7 in. at the edge and 6 in. at the center regardless of the traffic to be carried, for if they were made much thinner they would curl up in the sun like



# Is Practical for the Roads of Today

tissue paper, besides which the frost would get under and destroy them.

A 2-ton truck with a wheel load of 4400 lb. and an impact of 7900 lb. would produce in a slab of the thicknesses mentioned a maximum stress of 280 lb. per sq. in., a 3-ton truck 320 lb. per sq. in. (which is still well within the working limit of the material used, viz., 350 lb. per sq. in.). It is not until the 5-ton truck is reached that it becomes necessary to increase the thickness of the slab, and then only  $\frac{1}{2}$  in. or 7.7 per cent. For a  $7\frac{1}{2}$ -ton truck the thickness of the slab must be increased 1 in. or 15.4 per cent.

The foregoing figures are based upon the use of high-pressure pneumatic tires. Balloon tires give slightly less impact reaction, but the solid and cushion tires give more. Thus, for instance, with solid tires the thickness index for 5-ton trucks would be 1.231, hence a considerable increase in thickness would be required if solid tires were to be extensively used. But the Bureau finds that the state laws, the prac-

tices of manufacturers and the inclinations of operators all favor pneumatic tires.

The results of investigations by the Bureau of Roads indicate that motor buses and motor trucks, as well as all other kinds of vehicles for operation on improved rural highways, ought to be limited to pneumatic tires. The accompanying chart shows that if this tire limitation is imposed, the use of 5-ton trucks would call for an increase in slab thickness of 8 per cent, and of  $7\frac{1}{2}$ -ton trucks for an increase of 15.4 per cent over what would be used in any case.

Mr. MacDonald said that in his judgment the heavier buses and trucks, by the higher taxes which they are paying, and particularly through the collection of gasoline taxes, are fully meeting all excess costs of construction due to the increased thickness that is made necessary by the heavier loads. The maximum load should be limited to about 9000 lb. per wheel, or 18,000 lb. per axle. The roads that are being built today will stand that maximum load.

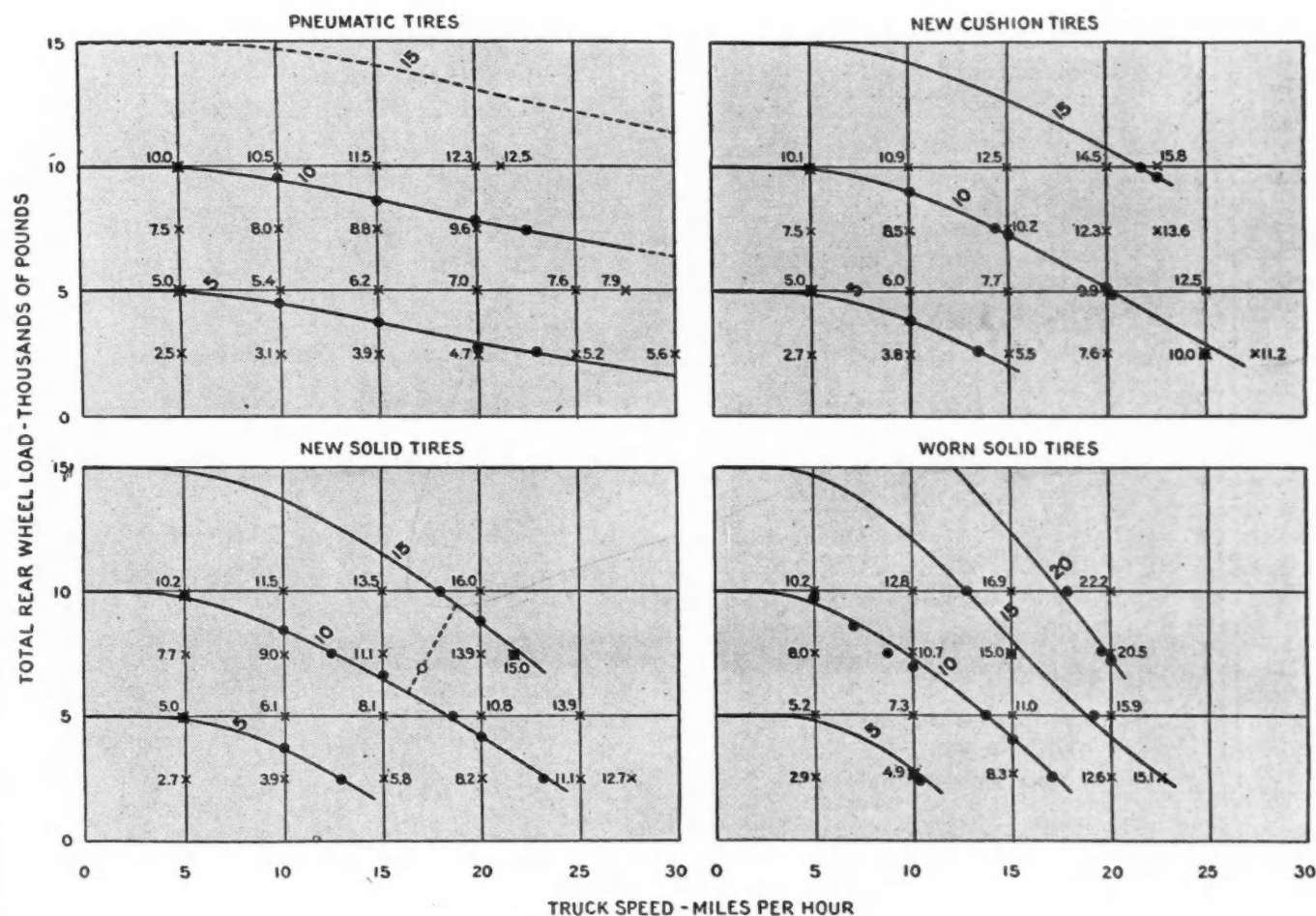


Fig. 1—Isodynamic curves for fair sheet-asphalt surface, for the determination of average total vertical impact reactions occurring at the rate of 100 per mile

# Increase of Axle and Clutch Troubles Indicated by Analysis of Breakdowns

Royal Automobile Club of London makes comparative report for five years showing "accidents" in 1930 contributed their lowest proportion since 1926.

THE Royal Automobile Club, London, in its annual analysis of breakdowns and roadside troubles reported by members utilizing the club's "Get You Home" service, shows that for the fifth year in succession, clutch defects have increased in percentage, the 1930 analysis putting this at 6.4, as compared with 5.9 in 1929 and 4.4 in 1926. Ignition details were again the most prolific source of trouble, remaining at approximately the same percentage as in 1929, viz., 20.4 per cent. Again, too, defects in rear axle

shafts take second place with an increase (to 14.2 per cent) for the fifth year in succession. After accidents (12.2 per cent, the lowest on record) come cylinder and piston faults at 10.4 per cent, which, again, as the accompanying table shows, is higher than five years ago; in 1925 these items accounted for only 6.9 per cent of all breakdowns. The analysis covers many thousands of cases dealt with under the R.A.C. scheme, which provides for the use of a free relief car to the stranded member and his passengers.

## Five Years Percentages of Causes of Breakdowns

Power Unit	1926	1927	1928	1929	1930
Ignition .....	22.5	21.	22.7	20.3	20.4
Carburetion .....	2.5	2.6	2.6	2.6	2.8
Engine					
Cylinders and pistons .....	8.	10.2	10.5	10.9	10.4
Valve mechanism .....	.9	.7	.4	.6	.7
Valves .....	.9	1.4	1.4	1.5	1.5
Lubrication .....	2.3	2.7	2.5	3.1	2.8
Water circulation .....	1.7	1.1	2.2	3.1	2.6
Crankshaft .....	.5	.5	.5	.4	.7
Not stated .....	6.6	6.4	5.8	6.1	5.9
Starting .....	.6	.9	1.	1.	1.
Transmission and brakes					
Clutch .....	4.4	4.9	5.1	5.9	6.4
Gear box .....	2.8	3.2	2.6	2.4	2.3
Universal joints and propeller shafts .....	4.6	4.9	4.1	4.3	4.1
Brakes .....	.3	.2	.1	.2	.3
Back Axle					
Axle shafts .....	12.6	13.6	13.8	14.	14.2
Differential .....	1.2	1.4	.7	.9	1.
Bevel and worm gears .....	1.2	.7	1.	.8	.9
Front axle and steering .....	4.3	3.1	3.3	2.4	3.3
Wheels and springing .....	5.9	4.1	4.2	4.5	4.3
Lighting failures .....	2.1	2.2	2.0	2.4	2.2
Accidents .....	14.1	14.2	13.5	12.6	12.2
	100.	100.	100.	100.	100.

# Soldered Rustless Steel Joints Have Shown Great Strength on Tensile Tests



The slowness with which rustless steel conducts heat presents difficulties for the operator. To overcome this a special solder has been developed which liquefies at lower temperatures + + + + +

By Kenneth T. MacGill  
Joseph T. Ryerson & Son, Inc.

The strength of a joint is built up by the fillet formed on the back of the seam as well as on the front where the soldering iron is in contact with the metal

WITH the advent of 18-8 rustless steel as an important commodity in industry, the problem of soldering it has been given much consideration. To those who have attempted it for the first time the process might seem unusually difficult. As a matter of fact this material can be soldered easily and well. Soldered joints have shown as high as 8000 lb. per sq. in. on tensile pull tests.

A knowledge of the physical properties of both the metal and solder is a help in overcoming any difficulty met with in soldering. Some of the properties which make the metal so desirable to use, such as its resistance to chemical action and its low ratio of thermal conductivity (being only 48 per cent of iron), are directly opposed to the properties which make ordinary soldering easy.

The strength of a soldered joint is built up to a large extent by the fillet which should be formed on the back of the seam as well as the front where the soldering iron is in contact with the metal. To secure such full penetration it is, of course, necessary that the full width of the seam be heated to a point above the complete liquidation point of the solder. Appreciating the slowness with which rustless steel conducts heat, it is obvious that to solder, using ordinary grades of solder, either greater heat must be used on the soldering iron, or the travel of the soldering iron

slowed, so as to give sufficient time for the full width of the seam to attain the proper temperature.

Both methods are objectionable, as they make the operator deviate from his usual practice, and unless he is unusually skilled the work is apt to be faulty. To overcome this a special solder and a dairy solder have been developed. These have not only greater strength than the ordinary solder, but are completely liquid at lower temperatures. The temperatures used in ordinary soldering heat the entire width of the seam to a point where these new solders will penetrate the seam and form the necessary fillet on the reverse side.

In order to secure these results, it is understood that the parts to be soldered are free from oxide and grease. On account of the high resistance of rustless steel to chemical corrosion, ordinary fluxes do not properly etch the surface, so a special flux has been developed which accomplishes this result. Because of the tendency of flux acid to attack the metal it is necessary that the workman, when the job is completed, thoroughly wash all surfaces with a soapy or soda solution so as to preserve the finish.

Tests have shown that a soldered joint with 1/64 in. of solder between the surfaces has much greater strength than a job where the surfaces are only sweated together. It is evident that if the two surfaces to be soldered are tightly clamped together, neither the flux nor the solder can penetrate. Care should be taken, if the two pieces must be clamped in order to hold them, that a thin spacer of a slight crimp is put in the metal at the point where the clamp is placed in order to insure sufficient space for both the flux and solder to penetrate.



# NEW DEVELOPMENTS—AUTOMOTIVE

## Brown Flame Analyzer

AN instrument for checking the heating effect of fuel gases, known as the Brown flame analyzer, has been developed by the Brown Instrument Co., Philadelphia. It enables gas companies and industrial plants using producer gas, etc., to check and regulate the quality of their gas output with special reference to heating effect. Where it is necessary to dilute a rich gas or to enrich a lean gas, the flame

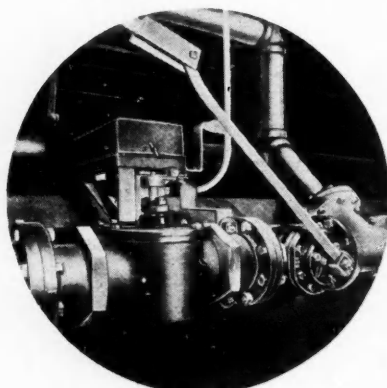


Fig. 1

analyzer makes it possible not only to observe and record the quality of the output, but to automatically control the mixture so as to insure a uniform product.

Fig. 1 here-with shows an installation of the flame analyzer at the plant of the Louisville Gas & Electric Co., Louisville, Ky., while Fig. 2 shows a gas mixing valve automatically controlled by the flame analyzer.

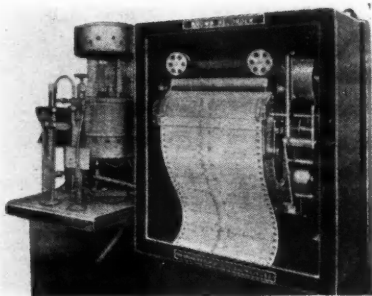


Fig. 2

## Aircraft Welding Blowpipe

THE type W-107 welding blowpipe has been added to the Prest-O-Weld line by the Linde Air Products Co., New York, N. Y., as an improved sheet metal blowpipe to be handled through Prest-O-Weld distributors. While this new blowpipe has been designed primarily for airplane fuselage welding, it is suitable for light welding work of all kinds. In design and appearance it is somewhat similar to the Oxxweld type W-15 blowpipe, but it operates on the medium pressure principle. The gases mix immediately in front of the handle and the oxygen and acetylene valves are so located that they can be readily adjusted with the thumb and forefinger of the hand which holds the blowpipe. The blowpipe is 10½ in. in length, weighs only 10 oz. and is perfectly balanced. Six different size tips are available for use with this blowpipe although it is furnished as standard with five tips, Nos. 2 to 6 inclusive.

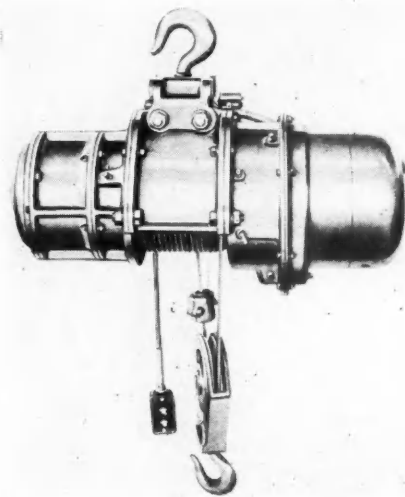
## Heavy Electrode Permits Quality Welding

THE General Electric Co., Schenectady, N. Y., announces a new heavily-coated electrode, type R, for quality welding. It is composed of 0.13 to 0.18 carbon steel covered with a heavy coating of cotton braid impregnated with an arc stabilizing flux, and will be available in diameters from ⅛ to ⅜-in. by 18-in. lengths.

Metal deposits of this electrode will have high tensile strength and will produce a homogeneous structure resulting in a ductile weld. This is due to the fact that, during the arc transference period, the metal is in a protective atmosphere because the electrode itself burns away quicker than the coating.

## Wright Introduces New Electric Hoist

A TYPE W ELECTRIC HOIST has been placed on the market by the Wright Manufacturing Co., Bridgeport, Conn., for installations where high operating speeds, economical operation and low-cost maintenance are first essentials.\* To obtain high speeds plus efficient operation, the motors are of a liberal size and designed especially for this type of hoist. Low-cost maintenance is



obtained by correct design, simple construction and the use of the highest grades of materials. The hoists are designed for different types of suspensions. They are furnished with either push button or pendant rope control at the same price. The motors and controls are fully inclosed—dust-proof and weather-proof—so that the hoists are suited for both indoor and outdoor installations.

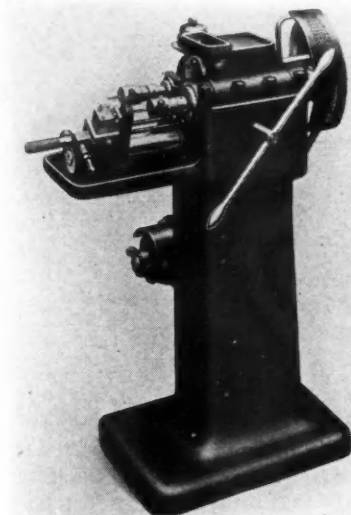
# PARTS, ACCESSORIES AND PRODUCTION TOOLS

## "Mum" Two-Spindle Horizontal Drilling and Tapping Machine

**T**WO-SPINDLE horizontal drilling and tapping machines in two sizes, HBG-1 with a capacity of 5/16-in. drill in steel and HBG-2 with a capacity of 5/8-in. drill in steel, have been placed on the market by the United Machine Tool Corp., New York City. These machines are designed for high-speed work where successive drilling and tapping with one setting is desired.

The swinging work holder is adjustable in height. Its motion is such that in one position the work is in correct location for drilling, while

in the other position the bore is in accurate alignment with the tapping spindle. This holder has a cylindrical bore for receiving the simple locating plate, which can be so designed that it is only necessary to slide the work piece over an arbor or place it between stops, accord-



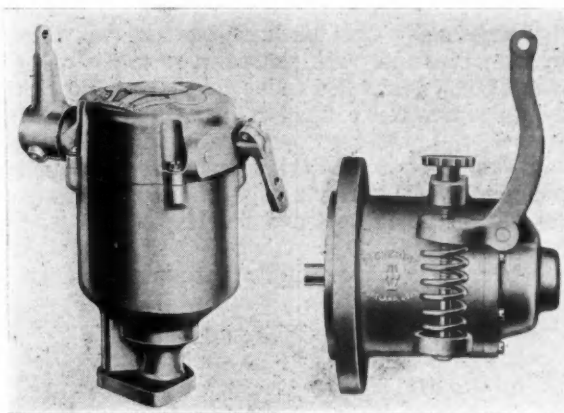
ing to its size and shape. The belt drive of Model HBG-2 is from a countershaft with self-oiling bearings to the cone step pulley on the machine, the shaft of which runs on ball bearings. On Model HBG-1 the countershaft is fixed to the machine, runs on ball bearings and can be driven direct from the main line shaft.

Motor size: 1/2 hp., 1400 r.p.m. for HBG-1; 1 hp., 1400 r.p.m. for HBG-2. Floor space, 19 x 28 in. and 40 x 26 in. Net weight about 370 lb. and 930 lb. respectively.

## Pickering Governors

**A** NEW governor for internal combustion engines recently put out by the Pickering Governor Co. of Portland, Conn., is known as the De Luxe model. It is of the flyball type and is provided with balanced feather springs. Ball bearings in the device take care of both radial and thrust loads, hence there is very little friction, and the governor is said to be very sensitive. It is gear-driven and may be mounted to operate in the vertical, horizontal or inclined position. The inertia of the moving parts is very small, and there is said to be no

friction to be overcome in slack joints in the connection to the butterfly valve, hence the governor is very responsive. The speed of an engine fitted with it can be changed by merely pulling on a speed-change lever, and a speed range of 1:2.5 may be obtained in this way. The lever is held in place by a friction collar, and there is no need for making adjustments by means of nuts or screws. It is shown at the left in the illustration.



Another governor, designed more particularly for use on tractor and stationary engines, is known as the GP model. It is equipped with ball bearings and is automatically lubricated, hence should be long-lived, and it is claimed to have a wide governing range and to give close regulation at any speed for which it may be set.

A third model recently developed and particularly suited for use on small industrial engines is known as the PG Junior, shown at the right in the illustration above. This also has ball bearings and automatic lubrication, and it is provided with a convenient speed changer which can be adjusted while the engine is running. Because of its compact size this governor can be readily installed on the timing-gear cover plate. This model is said to have been found well suited to use on the engines of combines, concrete mixers and other machines that place a variable load on the engine.

## Reed-Prentice Drilling and Turning Machine

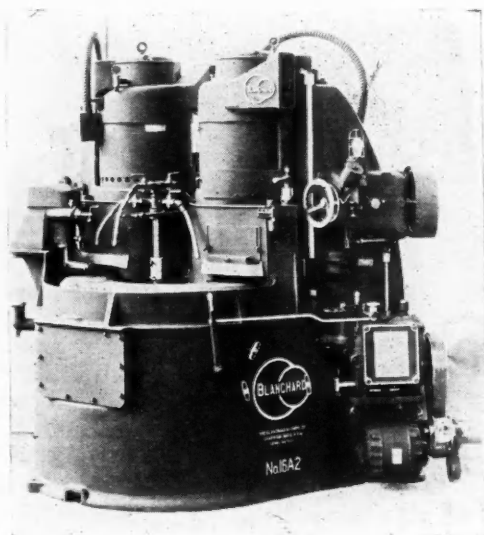
**A**CCORDING to a recent announcement, improved models of the No. 1 and No. 2 four-way drilling and turning machines, made by the Reed-Prentice Corp., Worcester, Mass., have been adapted to the production of differential spiders and work of like nature. Originally these machines were designed to speed up production of automobile and tractor housings.

## NEW DEVELOPMENTS

### Automotive Parts, Accessories and Production Tools

#### Blanchard Automatic Surface Grinder

TO extend the application of the automatic surface grinder to work requiring better accuracy and finish, having more stock to remove than is possible with one wheel, the Blanchard Machine Co., Cambridge, Mass., has developed the No. 16-A2 automatic surface grinder. It operates like the single-wheel machine, but has two wheels under which the work passes in succession, each wheel being controlled independently of the other by its own wheel control caliper. This makes it possible to control not only the finished size but also the amount of stock left for the second or finishing wheel. Having determined the proper amount of stock to leave for the second wheel the caliper of the first wheel will control its height so as to leave exactly that amount, regard-



less of variations in the initial stock on the rough pieces. The caliper of the second wheel, set for finished size, will control that wheel to deliver a uniform thickness of finished work.

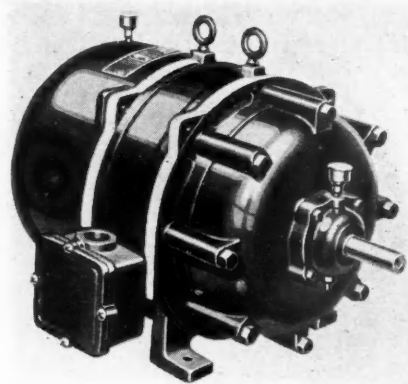
The separation of roughing and finishing operations simplifies wheel selection and reduces wheel cost per unit of work. It is also said to improve accuracy, because any distortion in the rough grinding is corrected by the finishing wheel. Incidentally the holding force applied to the work can be reduced when finishing, while at the same time using full holding power under the roughing wheel.

The overall dimensions of the machine are 7 ft. 5 in. long, 7 ft. 3 in. wide, and 8 ft. 1 in. high. The net weight without water in the tank is 17,500 lb. The motor equipment includes two

30 hp. (or smaller) motors on the wheel spindles, a 2 hp. motor to drive the work table, two 2 hp. motors for raising and lowering the wheel heads and two  $\frac{3}{4}$  hp. motors direct connected to the pumps.

#### Howell Motors

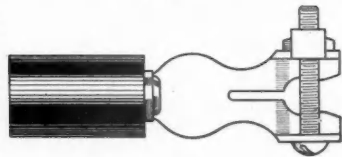
THE Howell Electric Motors Co., Howell, Mich., announces the development of a new motor that bears the approval of the Underwriters' Laboratories for Class 1, Group D, covering use in gasoline vapor and air mixture or lacquer solvent and air mixture. This motor is built either polyphase or single phase with a totally inclosed frame or a totally inclosed fan-cooled



frame. The motor illustrated shows the totally inclosed fan-cooled frame. The polyphase motors are of squirrel-cage construction with extra heavy castings, bolts and parts. The single-phase motors are also of squirrel-cage construction. They are of the condenser start type, each motor having a condenser starting unit placed in a separate box which must be mounted outside the hazardous area.

#### Spark Plug Connector for Airplanes

THE drawing herewith shows a new spark plug connector for aircraft, manufactured by the Dickey-Grabler Co., Cleveland, Ohio. It comprises a copper stamping which is slipped over the terminal of the plug, but reliance is not placed on the springiness of the copper to hold the connector in place.



On the contrary, the stamping is provided with lugs or ears with holes in them, through which is passed a brass screw. This



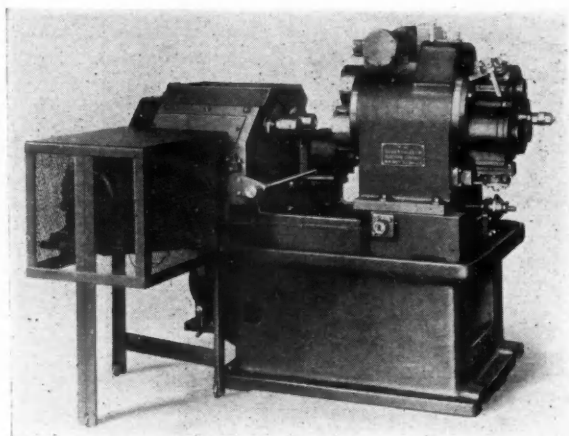
screw carries a nut that is locked against unscrewing by a flap integral with one of the ears, that is turned over the nut. The copper stamping is secured by a hollow rivet to a brass ferrule surrounded by a tube of insulating material.



## Goss & De Leeuw Two-Spindle Chucking Machine

Goss & De Leeuw Machine Co., New Britain, Conn., has added to their line of four-spindle chucking machines a two-spindle machine, which is similar in principle but designed for the purpose of putting on an automatic basis the comparatively simple chucking job. The operations performed on it are combinations of boring, facing, turning, drilling, reaming, and threading.

Two horizontal spindles, side by side, revolve the cutting tools; opposite them, on a face plate, are three work-holding chucks, two of them presenting the work to the tools, and the third, in the upper position, for unloading and loading. The indexing of the face plate carries the work successively from the loading position to the first



spindle in the rear, then to the second spindle in front, and back to the loading position. Thus two machining operations are being performed simultaneously while the loading is taking place without lost time. The finished piece can be automatically ejected from the air chuck between the second position and the loading position. The operator has only to place the rough piece in the open chuck and trip the closing valve. All three mechanisms, consisting of indexing, feeding and withdrawing the tools, and the starting, reversing, and stopping of the threading spindle, are automatic and mechanically interlocked so that they cannot operate except in the proper succession.

Production cycles of from 180 to 1200 per hour can be obtained with the standard sets of feed pick-off gears. Spindle speeds range from 100 to 1000 r.p.m. for either threading or plain machining. The threading spindle is driven and reversed by the standard Goss & De Leeuw independent reversing motor unit. This drive, with its smooth reverse, can handle the small tapping jobs up to 20 per minute and yet has the power to pull a 1 1/4 in. taper pipe tap in brass or iron. The machine is intended primarily for jobs requiring both plain machining and threading, but is equally adapted to two combination operations of plain machining.

*Automotive Industries*

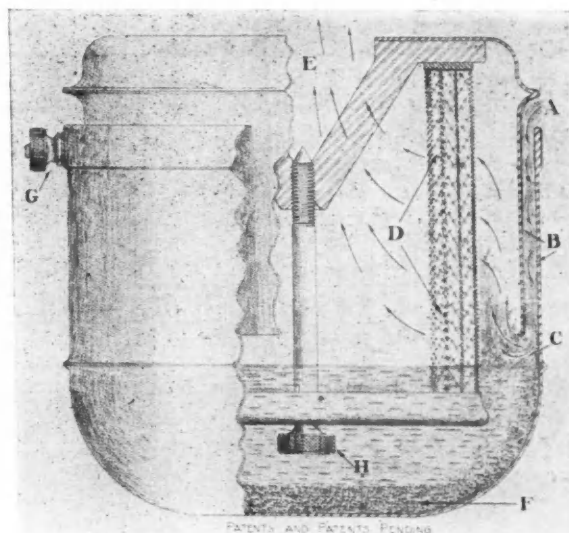
## NEW DEVELOPMENTS

### Automotive Parts, Accessories and Production Tools

## Oil-Bath Type of Air-Maze Air Filter

AN oil-bath type of air filter has been added to the line of the Air-Maze Corp., Cleveland, Ohio. It consists essentially of a standard inverted Air-Maze air cleaner combined with an oil bath. It is claimed to be highly efficient as an oil cleaner at all operating speeds and not to cut down the power of the engine throughout the entire service period.

Referring to the cutaway view of the filter herewith, the dust-laden air enters on all sides of the unit in a large but relatively thin vane at A. An induced spiral and rolling motion forces a large part of the grit and dust to deposit on the oiled surfaces of inner and outer cases at B. Additional dust is washed out when the air comes in contact with the turbulent oil bath at C. The semi-clean air is then thoroughly filtered while passing through the twelve layer Air-Maze filter



element D which is kept clean and recoiled by the splash of the agitated oil bath. The clean air proceeds to the engine at E while the dust is washed down into the sump at F.

Once a week (or once daily where much dust is encountered in operation), the filter is cleaned by dumping the bottom case, which is quickly removed by loosening the nut G. The case is then refilled with light oil exactly to the bead. To clean the filter element, the screw H is unscrewed and the filter element is swished up and down and sideways in waste crankcase oil and replaced.

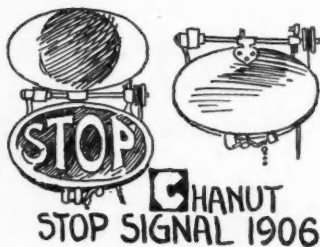
*April 11, 1931*

# Automotive Oddities—By Pete Keenan

**T**HE FIRST DIRIGIBLE OR STEERABLE BALLOON WAS SAILED BY HENRI GIFFARD IN FRANCE 79 YEARS AGO. He was brave enough to use a steam engine near a balloon inflated with coal gas.

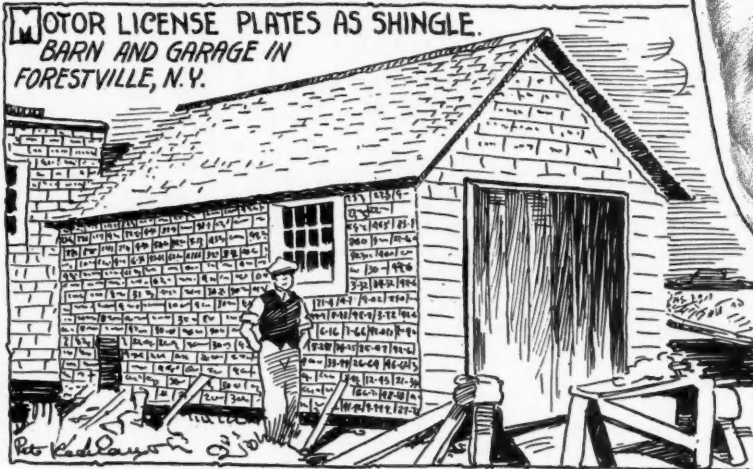


**P**REACHERS SAID IN 1895 THAT THE AUTO WOULD NEVER REPLACE THE HORSE. BECAUSE ONE WAS A SOULLESS MACHINE AND THE OTHER A SPIRITED ANIMAL.

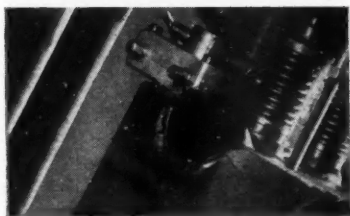


CHANUT STOP SIGNAL 1906.

**M**OTOR LICENSE PLATES AS SHINGLE. BARN AND GARAGE IN FORESTVILLE, N.Y.



**C.W. NASH**  
PRESIDENT OF THE NASH MOTOR CO., AT ONE TIME WORKED AS A CARRIAGE TRIMMER FOR A DOLLAR A DAY.



# NEWS

## OF THE INDUSTRY



### March Output Figure Revised

**N.A.C.C. Issues New Estimate for Whole of Industry**

NEW YORK, April 9—Figures for the March production of motor vehicles by the whole industry in the United States and Canada have been revised to a total of 286,883 units, by the National Automobile Chamber of Commerce. This supersedes the figure of 187,848 reported by members of the N.A.C.C. last week and is 25 per cent above production for the whole industry for the month of March and is higher than any monthly figure since last August.

Production for the whole industry during the first quarter of this year is estimated at 695,050 units.

### Tire Output Up

NEW YORK, April 8—American tire manufacturers produced 3,985,343 pneumatic casings during February as compared with 3,674,627 in January, or an increase of 8.5 per cent, according to The Rubber Manufacturers Association. Production in February of last year was 4,555,758 casings. Shipments during February totaled 3,401,684.

### Bendix Elects

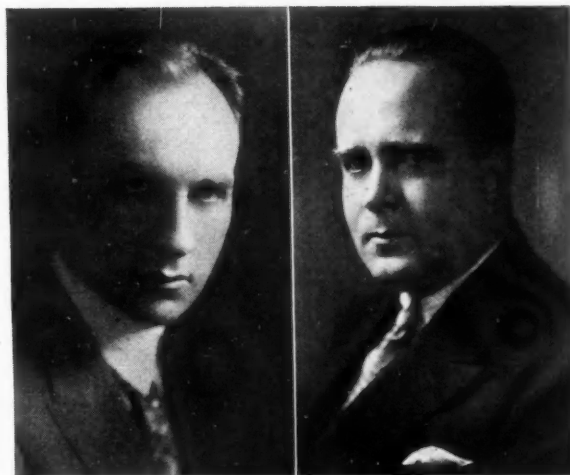
NEW YORK, April 9—Bendix Aviation Corp. stockholders have elected M. W. McConkey, chief patent attorney, Charles Marcus, vice-president, and James C. Willson, J. C. Willson and Co., as directors of the corporation. Frederick B. Rentschler and W. L. O'Neill have resigned.

### Marmon Orders Jump

INDIANAPOLIS, April 9—Orders received for the Marmon 70 since the announcement of optional free wheeling on this model, made a few days ago, are more than the total number of orders received during the month of March on this model.

HENRY S. STERLING, the N.A.C.C.'s much traveled exporep, is back from a year in South America where he lectured and moved in 150 spots \* \* \* Col. Lindbergh believes a whirling prop on a grounded plane is the most dangerous thing in aviation \* \* \* Mrs. Putnam (you mean Amelia Earheart!) rose 19,000 ft. in an Autogiro this week \* \* \* Mr. Nash sees a "return of optimism" . . . and Enoch Arden returned also \* \* \* And Maj. Doolittle thinks that aviation is past the "boom period," and will be more scientific in future . . . which may or may not affect its earnings \* \* \* Charles E. Sorensen, Ford gen. man., has ordered a new 140 ft. yacht . . . Bessemer Diesels will power it \* \* \* Billy Arnold, the big little speedboy, has joined the special sales staff of Chrysler \* \* \* a Graham won the annual hill-climb of the Royal Automobile Club of Victoria, Australia \* \* \* Factory employees of FWD are going to school . . . 50 of them have enrolled in a Univ. of Wis. extension course sponsored by the factory \* \* \* Stutz shipments and payrolls show increase \* \* \* Henry Ford has offered 25 summertime jobs to Yale students \* \* \* James D. Mooney, G.M. export's president, flayed the apathy of American car exporters in a statement this week . . . believing them to be losing their grip on world markets \* \* \* Mr. Ford and Thomas A. Edison will cooperate in showing how goldenrod may become gold, by turning it into rubber, as a feature of the Chicago World's Fair in 1933.—H.H.

### THE NEWS TRAILER



Harold F. Pitcairn (left) and Juan De La Cierva, developer and inventor, respectively, of the now-familiar autogiro, have been honored by the National Aeronautic Assn. with the award of the Collier Trophy for 1930. This award is made yearly for outstanding service to aviation in America.

### Traffic Men Discuss Rates

**Marvin Reports Rails Lost \$80,000,000 of Revenue in 1930**

DETROIT, April 8 — While automobile parts and assembled cars and trucks produced 1,014,392 carloads of freight for railroads in 1930, the year showed a shrinkage of approximately 400,000 carloads, J. S. Marvin, chairman, revealed at the conference of traffic managers of the National Automobile Chamber of Commerce today. This is reflected in a loss of revenue of upwards of \$80,000,000 to rail carriers. Mr. Marvin stated to a representative of *Automotive Industries*, however, that the percentage of rail to non-rail shipments during 1930 was virtually identical with the ratio for 1929, an interesting fact in view of the freight reductions which go into effect Saturday, April 11.

Mr. Marvin stated that it was too early yet to gage the effect of the new rates on the trucking of cars to dealers and that it would be a considerable time after the rates are effective before any data would be obtainable, or definite decisions reached on the part of car manufacturers.

### Chrysler Returns

NEW YORK, April 8—Walter P. Chrysler, president and chairman of the board of Chrysler Motors, returned yesterday on the S. S. Bremen.

### Hudson Sales Gain

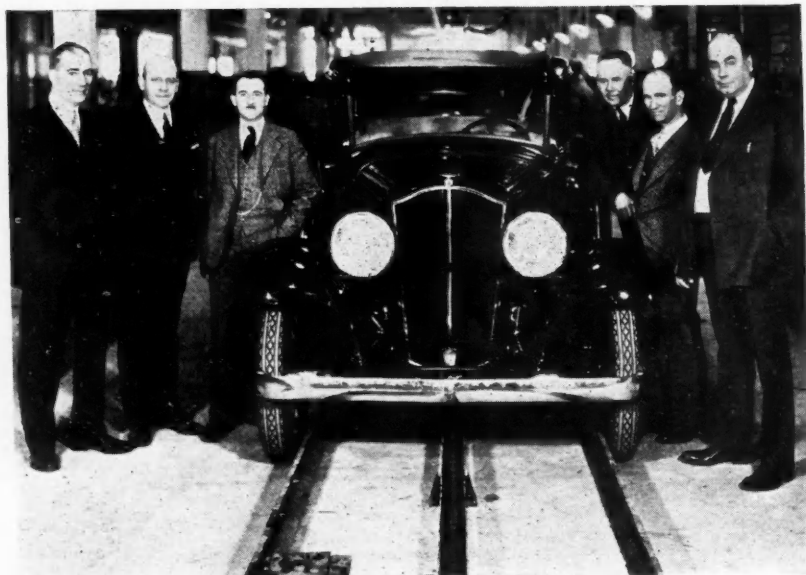
DETROIT, April 8—Hudson-Essex sales increased 17 per cent the week ending April 4, as compared to the previous week, which was the best since June 19, 1930.

### Dodge Deliveries Up

DETROIT, April 8—Deliveries of Dodge sixes and eights week ending March 28 increased 4.5 per cent over preceding week.



## De Vaux Debut



The first of the line-assembled De Vaux six-cylinder cars left the Grand Rapids plant last week. It was driven away by George W. Browne, Milwaukee distributor, who is standing at the right of the picture. Others in the illustration, from left to right, are Col. E. G. Hall, engineering vice-president of De Vaux-Hall; George R. Scott, manufacturing vice-president; R. T. Smith, chief engineer; H. T. Kuhlman, factory superintendent, and Earl Cooper, chief test engineer.

### English Plant Delayed

LONDON, March 30 (by mail)—Unforeseen difficulties and delays in the construction of the new Ford plant at Dagenham, near London, have led to a revised estimate as to the date when production will commence; originally the plant was expected to be ready by August this year for production to be begun on a small scale relative to the ultimate capacity of the plant; but it is now stated that there is little hope of starting before March or April next year. The plant, it may be recalled, is planned for an output of 200,000 units a year and will supply Europe and the Near East as well as the English market.

### Martin Renamed "Victory"

WASHINGTON, April 8—The Martin midget car, to be manufactured by Martin Motors, Inc., in the plant of the M. P. Moller Motor Car Co., at Hagerstown, Md., will be marketed under the trade name of "Victory," according to an announcement from the company's office in Washington. A public demonstration in Hagerstown of the first units of the new car is planned for the near future.

### Austin Drops Office

TORONTO, April 6—Announcement has been made by the directors of the Canadian Austin Car Company, Limited, of Toronto, Ont., that operations in Canada will be discontinued, and sales and service transferred to the American Austin Car Co., of Butler,

Pa., of which the Canadian company is a subsidiary. The move is said to be part of a retrenchment policy the company has embarked upon due to business conditions. The Canadian dealer and distributor organization will now be handled directly by the American concern.

### Hercules Reports Profit

CANTON, OHIO, April 8—Net earnings of the Hercules Motor Corp. for the fiscal year ended Dec. 31, 1930, after deductions for all charges and Federal income tax, amounted to \$387,812. This compares with net earnings of \$1,139,769 for the previous year.

Current assets, the report shows, amount to \$2,306,330, as compared with current liabilities of \$400,218.36, showing a net working capital of \$1,906,112.

### Washington Sales Are Good

WASHINGTON, April 9—New automobiles sold in Washington in March were only 100 short of the record month's sales of 2581 made in March, 1929, according to Whitney Leary, president, Washington Automotive Trade Association.

### G.M.A.C. Managers Called

NEW YORK, April 7—Regional managers of General Motors Acceptance Corp. from all over the country are called into New York this week for a series of conferences.

## Canadian Ford Reports Profit

**Co. Earned \$3,157,876  
During 1930; Exceeded  
Dividend Needs**

EAST WINDSOR, Ont., April 7—Net profits of the Ford Motor Co. of Canada, Ltd., during 1930 totaled \$3,157,876.72, after deductions of all charges for manufacturing, selling and general expense, including reserve for depreciation and provision for income tax.

The company's net profits were in excess of one and one-half times the regular dividend requirements. Total dividends paid during the year aggregated \$3,483,816, including regular dividends and extras. The company during the year inaugurated regular dividends.

The company's total sales and other income aggregated \$45,858,087.68. Output, including sales to affiliated companies in British overseas territory, reached 70,259 cars and trucks and 2186 tractors.

The report stressed the highly liquid condition of the company's business following a year of serious depression. Cash on hand and in banks totaled \$5,548,277.07. Bonds issued or guaranteed by the federal, provincial or municipal governments in Canada or by the Canadian National Railway and held by the company were listed at \$12,950,140.11, which represented cost and less than market value. Accrued interest on bank balances and bonds totaled \$186,358.59.

A reduction in inventory of \$1,031,439.23 at the close of 1930 was reported, total inventory being \$3,733,647.34.

Advances to affiliated companies in Australia, Singapore, India and South Africa were reported as \$5,267,082.48. This showed an increase of \$939,186.53 as compared with the previous report. The advances represent balances owing by affiliated companies, principally for materials furnished for the assembly and resale of Ford products.

### Covers Material Needs

NEW YORK, April 6—General Motors Corp. has covered its requirements for certain raw materials through October. This is taken as evidence of the belief on its part that commodity prices are or have been at the approximate low point for the current depression period.

### M. & E.A. Directors to Meet

NEW YORK, April 7—There will be a meeting of the board of directors of the Motor and Equipment Association in Detroit, May 1 and 2.

## Steel Sales Hold Up

**Leading Sheet Producer Operating at 70 Per Cent of Capacity**

NEW YORK, April 9—While volume of automotive demand for steel seesaws more or less from week to week, it is, on the whole, well maintained. The leading "independent" producer of full-finished automobile sheets, perhaps the best index commodity among descriptions of steel used by automotive consumers, reports a continuance of 70 per cent of capacity operations.

Production of steel ingots, according to returns to the American Iron and Steel Institute, published on Monday, averaged in March 54.74 per cent of capacity against 49.57 per cent in February. March steel ingot output was at the highest rate in six months and about three-fifths of what it was in March, 1930. The consensus of opinion in the steel market is that April will bring further moderate gains in all departments of the industry. Prof. William Z. Ripley's demand for a wide-open market in steel rails instead of the pegged \$43-a-ton price caused a certain amount of uneasiness not only in Wall Street, but also in the steel market.

Prices, quothably unchanged all along the line, hold fairly steady, the tone of the market under keen competition for business continuing, however, easy.

**Pig Iron**—Demand from automotive foundries is of a routine character. All of the markets reflect the light demand from jobbing foundries catering to the machinery trades. Prices are nominally unchanged, there being very few representative tonnage sales to test them.

**Aluminum**—Last month's takings of aluminum by automotive consumers showed considerable improvement over February sales. April is expected to be at least as good as was March. Prices are unchanged.

**Copper**—While producers' price remains at 9½c, delivered Connecticut, there were some offers at 9¼c in the market at the beginning of the week. Demand is very light.

**Tin**—Amid sluggish demand the price for Straits tin at the week's opening ruled at 26½c. The London market was closed on Monday.

**Lead**—Producers are of the opinion that a good deal of April business remains to be placed. The market is quiet and steady.

**Zinc**—Demand is virtually nil. Prices are unchanged.

## Allis Bookings Improve

CHICAGO, April 6—Bookings of Allis-Chalmers Manufacturing Company for February and March were larger in each month than during the preceding month, according to W. A. Thompson, comptroller and secretary, who adds that the company entered April with prospects for further improvement.

Although bookings expanded materially in each month of the first quarter, the company closed the quar-

ter with about \$1,500,000 less in unfilled orders on its books, as compared with the total on Dec. 31, 1930. As of March 31, 1931, the company reports that unfilled orders amounted to \$11,507,000. On the corresponding date in 1930, the company had unfilled orders totaling \$15,570,000, while on Dec. 31 last unfilled business aggregated \$13,002,000.

## British Sales Drop

LONDON, March 30 (by mail)—Following an increase in new passenger car registrations in December last, as compared with December, 1929, the January returns just issued by the Ministry of Transport show a drop from 13,670 last year to 12,651 this year. Truck registrations decreased from 5296 last year in January to 5066, but buses showed a slight increase, viz., from 533 to 579. Motorcycle registrations for the month were down from 5292 to 3980.

## Moon Petition Dismissed

ST. LOUIS, April 6—An involuntary petition in bankruptcy against the Moon Motor Car Co., filed in Federal Court last Nov. 15 by four creditors, was dismissed today by Federal Judge Faris after a brief hearing. A state receivership for the company instituted by Circuit Judge Hogan a few days before the suit was filed in Federal Court remains in effect and the receiver, Seneca C. Taylor, an attorney, is in charge of the affairs of the company.

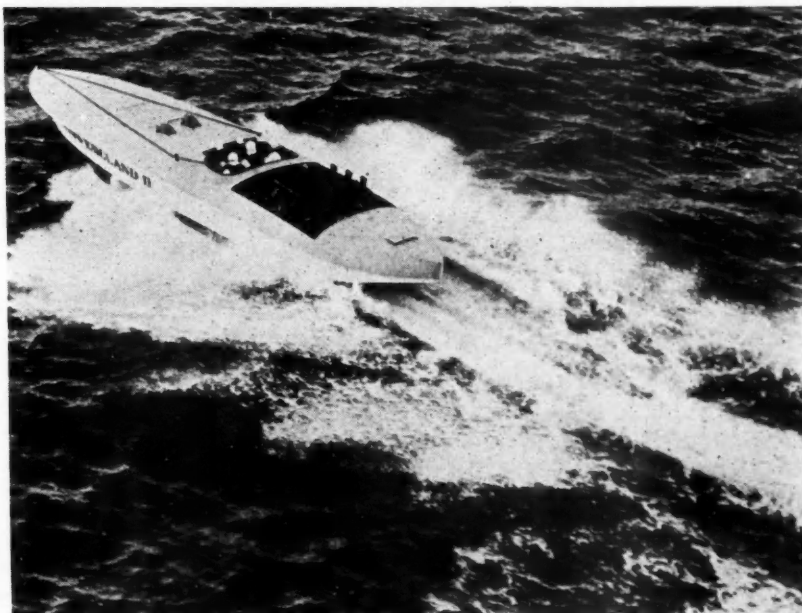
## Founders Plan May Convention

**Chicago Meeting Program Includes 135 Displays And Numerous Papers**

CHICAGO, April 6—The American Foundrymen's Association will hold its thirty-fifth annual convention in Hotel Stevens, May 4 to 7. The exhibition during the convention will have 135 displays and will require the ballroom and exhibition halls of the hotel. Discussion of technical papers dealing with problems relating to gray iron, malleable, steel and non-ferrous castings will occupy much of the time of the four-day session, but there will be meetings devoted to subjects of general interest.

Some of those reading papers under various classifications are: "Steel Castings"—Major R. A. Bull, Electric Steel Founders' Research Group, Chicago; F. A. Melmoth, Detroit Steel Castings Co., Detroit; Col. T. C. Dickson, Watertown Arsenal, Watertown, Mass.; H. J. Cole, General Electric Co., Schenectady, N. Y.; George Batty, Steel Castings Development Bureau, Philadelphia; "Malleable Iron"—J. R. Hruska, Berwyn, Ill.; Dr. Anson Hayes, Industrial Furnace Corp., Buffalo, N. Y.; J. R. Allan, International Harvester Co., Chicago; "Foundry Costs"—E. A. Baker, Ellery A. Baker & Co., New York; "Apprentice Training"—H. S. Falk, Falk Corporation, Milwaukee, Wis.; S. M. Brah, Tri-City Manufacturers Association, Moline, Ill.; "Sand Research and Control"—W. M. Saunders, Providence, R. I.; Dr. H. Ries and G. D. Conant, Cornell University, Ithaca, N. Y.; L. B. Knight, National Engineering Co., Chicago; "Gray Iron"—F. J. Cook, Birmingham, England; R. M. Allen, exchange paper on phosphorus in cast iron by J. Dessent and M. Kagan, Liege, Belgium, of the Belgian Foundry Technical Association.

## Rushing Waters



Kaye Don, veteran British racing pilot, clipped time from Gar Wood's motorboat speed mark, on the River Parana, Argentina, April 2, when he set a new world's mark of 103.49 land m.p.h. Gar Wood's best previous speed was 102.256 land m.p.h. Don's "Miss England II" carried two 12-cylinder engines



## The Advertising Bill Comes In

### Linage, Cost and Sales are Totaled

COMPANY	Total Retail Sales*		Newspaper Linage in 79-90 Cities*		Magazine Expenditures*	
	1929	1930	1929	1930	1929	1930
Ford .....	1,362,400	1,096,500	8,426,014	8,929,671	1,347,505	2,086,840
Ford .....	1,356,000	1,092,000	7,641,561	8,424,711	1,171,560	1,928,000
Lincoln .....	6,400	4,500	784,453	504,960	175,945	158,840
General Motors .....	1,315,700	937,200	32,119,617	21,069,320	5,188,430	4,160,170
Institutional .....	.....	.....	3,161,358	98,071	394,330	311,740
Chevrolet .....	807,300	640,500	5,479,020	6,790,188	1,288,975	1,149,565
Chevrolet—Used Cars .....	.....	.....	.....	1,674,941	.....	.....
Buick .....	162,300	114,200	5,774,538	3,609,048	.....	.....
Marquette .....	16,000	12,800	1,756,015	240,240	.....	.....
Buick-Marquette .....	.....	.....	189,887	205,928	1,510,600	925,720
Buick—Used Cars .....	.....	.....	.....	78,936	.....	.....
Oakland .....	33,000	22,400	3,532,304	1,004,494	.....	.....
Pontiac .....	163,800	70,800	4,514,819	1,138,244	.....	.....
Oakland-Pontiac .....	.....	.....	816,331	1,399,105	559,205	746,000
Oakland-Pontiac—Used Cars .....	.....	.....	.....	381,055	.....	.....
Oldsmobile .....	92,600	49,400	3,182,980	1,158,382	.....	.....
Viking .....	4,200	2,900	1,021,957	254,152	.....	.....
Oldsmobile-Viking .....	.....	.....	189,363	887,697	794,340	419,900
Oldsmobile-Viking—Used Cars .....	.....	.....	.....	412,601	.....	.....
LaSalle .....	21,000	11,700	65,339	134,774	.....	.....
Cadillac .....	15,500	12,500	16,759	405,500	.....	.....
Cadillac-LaSalle .....	.....	.....	2,498,947	1,094,380	700,980	607,245
Cadillac-LaSalle—Used Cars .....	.....	.....	.....	101,584	.....	.....
Chrysler .....	356,900	232,400	23,036,428	10,073,543	2,047,379	1,830,580
Institutional .....	.....	.....	63,066	.....	.....	.....
Dodge .....	119,800	66,300	6,930,060	3,058,566	452,200	537,845
Plymouth .....	87,900	66,600	4,256,474	970,845	.....	.....
Chrysler .....	87,500	63,000	7,374,023	3,813,266	1,333,899	964,355
Chrysler-Plymouth .....	.....	.....	18,528	.....	.....	.....
De Soto .....	61,700	36,500	4,394,277	2,230,866	261,280	328,380
Hudson .....	262,900	97,100	6,811,075	5,732,408	1,121,560	789,990
Used Cars .....	.....	.....	.....	26,714	.....	.....
Essex .....	198,000	65,600	4,560,078	2,147,135	.....	.....
Hudson .....	64,900	31,500	1,127,812	1,396,648	.....	.....
Hudson-Essex .....	.....	.....	1,123,185	2,161,911	.....	.....
Willys-Overland .....	206,700	68,100	6,030,217	2,823,300	877,480	643,532
Willys-Knight .....	38,700	14,600	2,196,291	403,524	.....	.....
Whippet .....	168,000	19,700	3,429,595	526,347	.....	.....
Willys .....	.....	33,800	.....	1,776,720	.....	.....
Willys-Knight—Whippet .....	.....	.....	404,331	116,709	.....	.....
Studebaker .....	94,400	65,500	9,058,081	6,034,371	975,319	861,839
Used Cars .....	.....	.....	.....	98,104	.....	.....
Studebaker .....	77,700	58,500	6,372,589	3,543,698	699,519	617,469
Erskine .....	8,000	.....	149,530	1,035,929	.....	.....
Studebaker-Erskine .....	.....	.....	.....	48,171	.....	.....
Pierce-Arrow .....	8,700	7,000	2,535,962	1,308,469	275,800	244,370
Nash .....	108,800	52,900	6,588,172	4,027,926	.....	.....
Graham .....	62,600	31,200	4,334,886	2,222,666	292,450	264,500
Packard .....	46,200	29,300	3,203,232	1,692,970	819,040	659,500
Used Cars .....	.....	.....	.....	47,751	.....	.....
Packard .....	.....	.....	3,203,232	1,645,399	.....	.....
Hupmobile .....	45,900	25,200	3,366,490	1,009,730	604,200	251,800
Used Cars .....	.....	.....	.....	2,856	.....	.....
Hupmobile .....	.....	.....	3,366,490	997,874	.....	.....
Durant .....	49,400	22,200	2,318,387	858,940	.....	.....
Auburn .....	19,300	13,600	1,198,005	939,961	315,970	370,478
Auburn .....	18,500	11,700	975,913	595,456	.....	.....
Cord .....	800	1,900	222,092	301,588	.....	.....
Auburn-Cord .....	.....	.....	.....	42,917	.....	.....
Marmon .....	22,300	12,800	2,731,708	1,245,413	240,255	271,690
Marmon .....	8,600	12,800	724,970	1,079,041	.....	.....
Roosevelt .....	13,700	.....	1,792,348	40,643	.....	.....
Marmon-Roosevelt .....	.....	.....	214,390	125,729	240,255	271,690
Reo .....	17,900	11,900	2,258,093	1,349,431	485,600	582,870
Franklin .....	11,100	7,700	2,083,462	1,035,342	350,400	245,330
Austin .....	.....	.....	2,492	392,739	.....	.....
Peerless .....	8,600	4,200	821,604	450,215	.....	.....
Miscellaneous .....	24,200	10,200	.....	.....	.....	.....

\* Table reprinted courtesy Editor and Publisher, New York. Magazine expenditures from National Advertising Records. Newspaper lineage figures from Media Records, Inc. Sales figures from the

Statistical Issue, *Automotive Industries*. Newspaper lineage figures are not comparable, owing to the addition of new cities to the Media Records' compilation for 1930.

### Trippe Returns to Chicago

CHICAGO, April 6—Trippe Mfg. Co., for several years located in La Porte, Ind., is returning to Chicago, establishing headquarters at 1731-35 Belmont Avenue. The firm manufactures automotive accessories.

### Completes "Akron" Generator

OSHKOSH, WIS., April 6—The Universal Motors Co. is about to complete

delivery to the government of a special 8-kw., 110-volt generating set for installation in the Navy's new dirigible, "Akron." The unit has been in production for six months. In many of the parts aluminum is used instead of cast iron, and the motor is cadmium plated to resist salt air corrosion. A standard motor recently was shipped to Akron and made a successful 500-hr. non-stop test run in a reliability demonstration.

## Tire Companies See Wage Cut

### Goodyear and Goodrich Organizations Will Effect Employment Reclassification

AKRON, O., April 6—Both Goodyear Tire & Rubber and Goodrich Tire & Rubber companies will soon put into effect a reclassification employment schedule which will result in cutting wages from five to 20 per cent.

Goodyear made its announcement of the reclassification program at the close of the last week-end, and closely following it, came a statement from T. G. Graham, vice-president of Goodrich, which indicated his company would follow the footsteps of Goodyear. The announcement said:

"It is a fundamental labor policy of the B. F. Goodrich Co. to pay wages in line with the current scale in communities in which its plants are located, and with proper consideration to competitive manufacturing costs.

"Industrial conditions during the past year have necessitated some adjustments in basic wages throughout Goodrich plants, and the future policy must necessarily be determined in a large measure by competitive conditions in the rubber and other industries, in addition to the wage rates of the localities in which Goodrich is manufacturing products."

### Plans Aero Trade Meetings

NEW YORK, April 6—The Aeronautical Chamber of Commerce of America, Inc., plans eight major trade conferences, to be held in conjunction with the national aircraft show in Detroit, April 9 to 19. These conferences will open on April 9 and 10 with a meeting of traffic officers of approximately 40 transport lines in the United States who will discuss merchandising plans.

Executives charged with air transport maintenance problems will meet on April 13 and the executive committee of the accessory and material section will meet on April 14.

The national conference on aeronautical education, held under the joint auspices of the chamber and the Daniel Guggenheim Fund Committee on Elementary and Secondary Aeronautical Education, will hold a two-day session, beginning April 14.

The aircraft show committee will have a breakfast meeting on April 15 and the Society of Automotive Engineers will open a two-day aeronautics session on that day. The S.A.E. and the chamber will stage a joint banquet at the Book-Cadillac Hotel, Thursday evening, April 16.

### Oakland Produces 11,291

PONTIAC, April 6—March production of Oakland-Pontiac cars totaled 11,291 units, exceeding not only January and February production but also was larger than March, 1930.



# I. C. C. Grants More Freight Cuts

## Trunk Line Railroads Permitted to Reduce Tariff Schedules

WASHINGTON, April 9—Authority has been granted by the Interstate Commerce Commission to trunk line railroads to reduce rates on freight and passenger automobiles and chassis from Eastern points to Trunk Line and New England territories\* on five days' notice. Like authority has been given railroads with regard to rates from Central Territory to Eastern points.

Reductions will become effective April 12. The carriers had hoped to make them effective April 10 when the general cuts in rates in official classification territory becomes effective, but since special permission was not granted until April 7, these particular reductions will not go into effect until two days later or next Sunday. New rates will be subject to alteration rule permitting the use of class rates if they are lower than commodity rates.

Schedules apply to shipments in straight or mixed carloads, minimum weight 10,000 to 20,000 lb. Trunk line movement affected covers such origin points as Buffalo, Tarrytown and Syracuse, N. Y., Edgewater and Chester, Pa. Typical of new rates from the Detroit-Toledo group, stated in cents per hundred pounds, are as follows: To Binghamton, N. Y., 101; Clearfield, Pa., 95; Cumberland, Md., 96; Elkins, W. Va., 101; Newark, N. J., 83; Rochester, N. Y., 75; Williamsport, Pa., 104.

\*Rate territories are defined in an article which appeared in *Automotive Industries*, issue of March 21, p. 465. A complete discussion of reduction of freight rates on automobile shipments appears therein.

## Chevrolet Produces 79,603

DETROIT, April 7—March production of Chevrolet Motor Co. was 79,603 cars and trucks. Production for first quarter was more than 326,000 units.

March output was larger than any month since 1930 and final figures for March exceed preliminary reports by more than 4000 units, and represents an increase of better than 18 per cent over February production of 67,000 units.

## Reed is Appointed

DETROIT, April 7—George B. Reed has been appointed sales manager of Detroit Forging Co. He was formerly connected with Endicott Forging & Manufacturing Co., Endicott, N. Y.

## C. W. Bronson Changes

DETROIT, April 7—Carl W. Bronson has resigned as advertising manager of De Soto Motor Corp. and has be-

come advertising manager of Graham-Paige Motors Corp.

Mr. Bronson joined the De Soto organization when C. W. Matheson was sales manager of that company and in his new position will again be associated with Mr. Matheson, who was recently made general sales manager of Graham-Paige.

## Federal Prices Reduced

DETROIT, April 7—A substantial price reduction on two of the most popular Federal Truck models has been announced by M. L. Pulcher, president, Federal Motor Truck Co., Detroit. The new prices now in effect are: \$795 for the Model D 1½ ton four-cylinder chassis and \$895 for the E6 six-cylinder 1½ ton chassis. Former prices were \$830 and \$1,090 respectively.

These low prices are made possible by manufacturing economies recently effected, according to Mr. Pulcher. There are no changes in design.

Federal officials report indications of an increased demand among domestic and foreign commercial car buyers, tending to show a steady improvement over 1930.

## Gasoline Demand Estimated

WASHINGTON, April 7—While the domestic demand for gasoline may show a rise during the remainder of this year, the gain will be more than offset by losses in the export field, and the total demand upon American sources of supply will probably show a decline of about 0.8 per cent, as compared to last year. This statement was made to Secretary of the Interior Wilbur as chairman of the Federal Oil Conservation Board by a voluntary committee on petroleum economics, which held an informal session in Washington today. Domestic consumption during the next six months was placed at 252,000,000 bbl., in the report of the committee. Crude oil output necessary to supply this demand was placed at a daily average figure of 2,521,497 bbl.\*

\*See the column "Business in Brief," in this week's issue of *Automotive Industries* for the latest report on crude oil production. This report appears weekly in the news section.

## Try Oil-Engine Buses

LONDON, March 30 (by mail)—The London General Omnibus has now put into experimental use in the metropolis 12 buses with the A.E.C.-Acro oil engine described in *Automotive Industries* of Dec. 13 last. The licensing authorities, as well as the company's engineers, have them under close observation, taking note particularly of noise, exhaust odor, and the alleged tendency of the fuel to creep from the tank and pipe lines, permeating to the body interior.

# March Sales Are Lagging

## First Nine States to Report Show Chev- rolet Still in Lead

PHILADELPHIA, April 9—The first nine states to report March registrations of new passenger cars indicate that sales in the first month of spring ran 37 per cent ahead of February but 38 per cent behind March, 1930. The gain in these states over the preceding month is, however, substantially less than the normal national seasonal expansion and in that respect these early returns are disappointing.

Chevrolet is ahead of Ford by 14 per cent in this group of states which makes the fourth successive month of sales leadership for General Motors' lowest priced line. Ford registrations were 56 per cent behind March, 1930, in these nine states; Chevrolet 25 per cent behind and all other makes combined, 27 per cent behind.

On the basis of early returns, March registrations of new passenger cars totaled about 185,000 against 298,000 a year ago. February returns are not complete as yet but reports from 44 states indicate a total for that month of 136,000, a loss of 36 per cent from the same month in 1930.

## Markets New Lining

NEW YORK, April 6—United States Rubber Co. has now placed on the market through the brake lining division of its tire department its late bonded brake lining. This product was developed in the fibre products department and has been submitted to laboratory tests which it is said indicate certain superiorities for brake linings manufactured by this process. The brake lining will be marketed under the name Royal Master.

## Durant Gets Injunction

LANSING, April 9—Durant Motors, Inc., Michigan residuary of the Durant holdings, obtained an injunction in a Canadian court, Tuesday, April 7, restraining Durant Motors of Canada, which is now Canadian owned, from entering a new company to be known as Dominion Motors, Ltd., in which Nash Motor Co. is also participating. The injunction is temporary, extending in effect to April 23.

## Ford Output 99,035

DETROIT, April 9—World production of Ford motor vehicles in March reached 99,035 units, compared with 85,109 in February and 169,045 in March, 1931. Production for the first quarter of this year was 239,326, compared with 400,700 for the first quarter of last year.

## Men of the Industry and What They Are Doing

### Firestone Names Cohill

John L. Cohill has been named vice-president and general manager of Firestone de la Argentina, S.A., to take charge of the Firestone company's operations in Argentina, where a plant is now nearing completion, according to announcement by Harvey S. Firestone, Jr., vice-president of the Firestone Tire and Rubber Co. and president of the new Firestone South American company.

Mr. Cohill has been assistant export manager of the Firestone Tire and Rubber Co. for the last five years. He will leave Akron next week to take up his new duties.

### Reeves on the Radio

Pointing out that eight out of every ten accidents are due to thoughtlessness on the part of the individual, Alfred Reeves, general manager of the National Automobile Chamber of Commerce, told the radio public April 6 that the greatest need in the reduction of accidents was observing the golden rule of the road.

Mr. Reeves was speaking over the radio as part of General Motors hour, and the broadcast took the form of an interview conducted by Graham McNamee, popular radio announcer.

### Canadians Elect Grossman

D. R. Grossman, vice-president and general manager of the Studebaker Corporation of Canada, Limited, Walkerville, Ont., was recently elected president of the Canadian Automobile Manufacturers and Exporters Association, while Dr. T. A. Russell, president of Willys-Overland, Ltd., and of Massey-Harris, was elected vice-president of the same body.

### Goodyear Names Berkinshaw

Goodyear Tire & Rubber Co. of Canada, Ltd., announces that R. C. Berkinshaw has been appointed assistant to the president and acting comptroller. These offices were formerly held by the late J. G. Lane. Mr. Berkinshaw came with the company in 1920 in charge of the legal department and was later appointed secretary.

### Williams Addresses Dealers

John E. Williams, former Chicagoan, now vice-president in charge of sales for the Franklin Motor Car Co., addressed more than a hundred members of the Chicago Automobile Trade Association, Friday, on "The 1931 Offensive," the fifth sales clinic of the Chicago organization in the Hotel Sherman. "Sound management and sensible selling" were stressed by Mr.

Williams, who has just returned from an extensive sales survey of the country.

### Chrysler Names Petrie

Chrysler Sales Corp. has appointed F. A. Petrie as district manager for the New York district, according to J. W. Frazier, general sales manager. Mr. Petrie has been connected with Chrysler sales for several years, having recently served as president of the Chrysler Illinois Co., distributing in the state of Illinois.

### Cannon Foundry Reelects

D. J. Campbell was reelected president of Campbell, Wyant & Cannon Foundry Co., Muskegon and other officers reelected at the annual meeting are as follows: G. W. Cannon, vice-president; Ira A. Wyant, secretary-treasurer; George D. Branstrom, assistant secretary-treasurer.

### Norris Heads Company

John E. Norris has again become president of the Indianapolis Mfg. Co., manufacturer of wood separators for storage batteries, after five years, during which he was not connected with the active management of the company of which he is the organizer.

### T. G. Graham in Hospital

T. G. Graham, vice-president of the B. F. Goodrich Tire & Rubber Co., was stricken with appendicitis, April 4, was rushed to City Hospital and operated upon. Reports in the early part of this week say that Mr. Graham is making a good recovery.

### Merchants Elect Colt

The Automobile Merchants Association of New York, Inc., has elected William L. Colt, president and general manager of Dodge Motors, New York, Inc., as its new president for the coming 12 months.

## Australian Car Planned

Melbourne Dealer  
Forms Company to  
Manufacture it for £500

PHILADELPHIA, March 9—Rumors of an all-Australian car\* are revived again with the publication in *Autocar* (London) of details of plans being undertaken by J. T. Buckingham and A. T. Ward, automobile dealers of Footscray, Melbourne. The company to manufacture the car is capitalized at £10,000, and the shares are privately held.

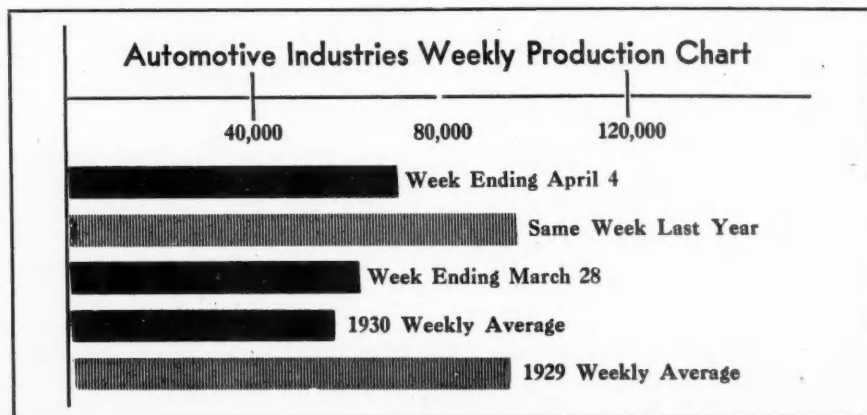
The car will be called the "Hamard" according to the published description, and its components will be manufactured entirely in British and Australian plants. This is made possible, it was stated, by the cooperation of the (British) Government Munitions Establishment at Maribyrnony, Australia, which will undertake certain boring and stamping operations.

It is hoped to produce the car before the end of the present year, and to engineer it in such a way that it will be sold in a price class in the neighborhood of £500.

\*In an article appearing in *Automotive Industries*, issue of Nov. 1, 1930, Hugh Croll, then acting as a special correspondent for *Automotive Industries*, quoted John Storey, president of the (Australian) Automobile Manufacturers Assn., as predicting the advent of an all-Australian car. Mr. Storey based his prediction on the fact that new tariffs had laid heavy protection on hitherto unprotected components of the passenger car. Mr. Croll's series of articles on automotive conditions in Australia appeared in the Sept. 27, Oct. 4, and Nov. 1, 1930, issues of this magazine.

### Rubber Shipments Rise

NEW YORK, April 6—Crude rubber productions from Malaya during March totaled 48,589 tons, according to cable advices received by The Rubber Exchange. This compares with 41,951 tons in February, and with 47,078 tons in March of last year. This brings shipments for the quarter to 132,119 tons, as compared with 148,212 tons during the first quarter of last year.





## Serene



HENRY FORD

Ford Motor Co. has:

\$300,000,000 in unimpaired cash reserves;

1930 profit of \$55,000,000 against

1929 profit of \$81,000,000,

according to a copyrighted estimate released by Dow, Jones & Co., publisher of the Wall Street Journal.

### Houdaille Position Stronger

CHICAGO, April 7—Operating economies effected during 1930, combined with the upward trend in volume of sales, has greatly strengthened the position of Houdaille-Hershey Corp., Claire L. Barnes, president, states in a letter sent stockholders with the annual report. Further economies, which should be reflected in earnings for the current year, have been made since January 1.

Income account for 1930 shows no change from the preliminary report revealing net loss of \$157,406. The figures include a loss of \$179,193 of Biflex Products Co., but excludes profits of Muskegon Motor Specialties Co., amounting to \$181,765. The property was acquired in January, 1931.

### Fuller and Johnson Assigns

MADISON, WIS., April 6—Fuller & Johnson Mfg. Co., manufacturing light gasoline engines, principally for industrial purposes, has voted an assignment to conserve its assets and main-

tain the business as a going concern. C. L. McMullen, president of the company, and William B. Roys, president of the General Casualty Co., Madison, have been appointed assignees. Unsecured claims are reported at \$190,000 and an effort at compromise is being made. Secured claims consist of a bond issue of which \$290,000 is outstanding. It is stated that the company, a pioneer maker of agricultural machinery, three years ago decided to concentrate on gasoline engines and the heavy development expense, with poor market conditions, have impaired its working capital. The assignment provides that the assignees may operate the plant to keep the good will intact. An international market has been built up.

### No Tax Immunity

TORONTO, April 6—Claims for immunity from the five cent government tax on "low test" gasoline will not be permissible under an amendment to the gasoline tax act brought down in the House by Hon. W. H. Price, Attorney-General. The amendment anticipates the placing on the market of low-test gas, consisting of 50 per cent benzol. Gasoline companies are said to have claimed exemption from the tax on the ground that there is no provision regarding benzol therein at present.

### Foy Meets Dealers

NEW YORK, April 6—Retail sales of De Soto cars in the metropolitan district for March showed an increase of 61 per cent over March of last year, according to Orrin P. Kilbourn, president of Kilbourn Motor Sales, New York distributors, at a meeting of De Soto dealers, held here last week. Dealers were given opportunity at this meeting of meeting Byron C. Foy, newly elected president of the De Soto Motor Corp.

### Brazil Plans Highways

NEW YORK, April 6—Brazil is considering a network of 11,200 miles of roads which would link up the industrial areas of the country and make possible transportation of goods from Rio de Janeiro to the distant western territory of Acre in five days, according to Pan-American Information Service. The cost of this project would be in the neighborhood of \$24,000 per mile.

### Approves Standards

NEW YORK, April 6—American Standards Association has approved tentative standards for symbols for heat and thermodynamics and for specifications for refined wrought-iron bars and specifications for wrought-iron plates.

## Sears, Roebuck Offers Ford Free-Wheeling

### Mail Order House Will Market Muncie Gear Replacement Unit

CHICAGO, April 7—Owners of Ford Model A cars may now purchase a free-wheeling (over-running clutch) device for \$15.45, plus installation charges, according to plans formulated by Sears, Roebuck & Co., national mail order and retailing organization. The device is manufactured by the Muncie Gear Co., and can be installed in standard Model A in about two hours, according to the announcement.

The sales possibilities of the device are being tested in the Michigan retail outlets of Sears, Roebuck, and it is expected that the item will be included in the late May issue of the company's catalog, whose offerings are to be effective as of June 1. National distribution is expected\* almost immediately from that date, according to E. G. Wise, national sales manager for automobile accessories of Sears, Roebuck. Installation of the Muncie Gear device permits shifting from second gear to high, and from high gear to second gear without the use of the clutch pedal.

\*According to available descriptions, the Muncie Gear over-running clutch device does not permit any lock-out arrangement, so that the free-wheeling would be in effect at all times. This would automatically prevent the sale and use of the device in such states as Pennsylvania, which have laws prohibiting a car from coasting down long hills.

### Willys Adds Roadster

TOLEDO, April 11—Wilys-Overland Co. has announced a new Willys Six De Luxe Sport Roadster to sell in the low-priced six-cylinder field. It lists at \$675 f.o.b. Toledo.

Its engine is identical with the one in the current Willys Six line. The rear quarter includes a rumble seat. The exterior color combination is in three shades of light green, the color being extended to the fenders, splashers, gas tank, etc. These exterior colors harmonize with the upholstery of green leather, which is standard.

### Plan Show Building

VANCOUVER, B. C., April 6—A contract has just been awarded for the erection of a new automobile show building at Hastings Park, Vancouver, B. C. In this building a motor show will be staged under the auspices of the Vancouver Motor Dealers' Association in connection with the Canadian Pacific Exhibition to be held early in August, of this year.





ANDRE MICHELIN

PHILADELPHIA, April 5—News comes from Paris of the death there on April 4 of Andre J. Michelin, a pioneer in the rubber tire industry, at the age of 78. Andre Michelin and

chronicler of the event, it strewed the road from Paris to Bordeaux with worn-out tires, no fewer than 22 inner tubes being discarded en route. Faith in the pneumatic tire grew rapidly, however, and in the Paris-Marseilles race, only a year later, more than half of the competing vehicles carried pneumatics.

The earliest pneumatic tires used on bicycles were of the single-tube type that were cemented to the rim, and the Michelins were among the first to develop the double-tube or detachable type, which greatly facilitated repairs.

The Michelin firm secured for itself the leading position in the tire industry of France, and since France before the war was the greatest automobile-exporting country, their tires were carried into practically every country on the globe. This resulted in the establishment of distributing depots and manufacturing plants for Miche-

## Andre Michelin is Dead

his brother, Edouard, were associated in the firm of Michelin & Co., with main works at Clermont Ferrand, and the history of the firm is practically the history of each of the brothers. In a way they were born into the rubber industry, for their grandfather started a factory for the manufacture of rubber balls in Clermont Ferrand about a century ago, and their grandmother was a niece of Charles MacIntosh, the Scottish inventor, who discovered the solubility of rubber in benzene.

Andre Michelin studied engineering at the Ecole Centrale Polytechnique in Paris and later worked in various departments of the French government, while Edouard studied art. But in 1883 the brothers decided to give up their professions and to take over the rubber factory, Edouard, the artist, assuming responsibility for the technical end, and Andre becoming business manager. Other rubber products had been added to the rubber balls originally made, and with the advent of the bicycle the brothers started upon the manufacture of tires.

With the development of the automobile the Michelins turned their attention to the new vehicle, and they were among the first to champion the cause of pneumatic tires as against solid rubber tires. That was the time when forceful propaganda for motor cars was being made through the medium of long-distance races, and the Michelins sought to induce some of the competitors in the Paris-Bordeaux and return race in 1895 to try their pneumatic tires, but none of them was willing to stake his luck on the delicate rubber tubes. The Michelins then entered their own vehicle, which finished ninth in the race, but, as has been recorded by one

lin tires in many foreign countries. Affiliated companies for the manufacture of Michelin products were established in London, England; Melbourne, Australia; Brussels, Belgium; Madrid, Spain; Frankfurt-on-Main, Germany; Vienna, Austria; Turin, Italy, and Milltown, N. J. This latter plant, established to supply the American market, was shut down last year, after having been in operation for 23 years.

The Michelins were great advertisers. A phrase coined by them and widely used in their advertising, especially during the period when it was still doubtful whether solid or pneumatic tires would eventually win out in competition, was "the pneumatic drinks (absorbs) the obstacle." Another of their publicity devices was the rubber tire man Bibendum, made up of rubber hose and appearing in all sorts of poses, which was displayed on all occasions where motorists congregated, as at races and shows. Michelins also have for a long time published touring maps, and in recent years they have published a "Facts and Figures of the French Automobile Industry."

From the time that the first successful flights were made with heavier-than-air craft the Michelins showed great interest in the development of aviation.

A number of important advances in wheel and tire equipment have emanated from the Michelin Works, among them the disk wheel composed of a single tapering disk which is now being manufactured in this country under license by the Budd Wheel Co. In the tire field the Michelins for a long time championed the clincher type as opposed to the straight-side type of tire, but in recent years they have manufactured both types.—P.M.H.

## Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

**NEW YORK, April 8**—The weather last week was unfavorable for business, and in the South it was unusually cold, with frosts in some sections of the cotton belt. General trade was on a moderate scale. There was no marked change in industry, although steel output declined slightly.

### CHAIN STORE SALES

Aggregate sales of 11 store chains and mail-order houses during March were 5.4 per cent below those a year ago, although there was a marked increase above the level of sales in the preceding month. The decrease in the aggregate sales last month was mostly the result of lower dollar sales of the mail-order houses.

### CAR LOADINGS

Railway freight loadings during the week ended March 21 totaled 741,942 cars, which marks an increase of 7680 cars above those in the preceding week, but a decrease of 133,433 cars below those a year ago, and a decrease of 220,485 cars below those two years ago.

### LUMBER OUTPUT

Lumber production during the week ended March 28 continued at a low level. Shipments were 8 per cent above production, and orders 7 per cent above.

### CRUDE OIL OUTPUT

Average daily crude oil production for the week ended March 28 amounted to 2,275,350 barrels, as against 2,268,050 barrels for the preceding week and 2,514,200 barrels a year ago.

### COAL OUTPUT

Production of bituminous coal during the week ended March 21 amounted to 7,403,000 tons, as against 8,371,000 tons during the preceding week, and 7,832,000 tons a year ago. Production of anthracite amounted to 1,267,000 tons, as against 1,085,000 tons during the preceding week, and 940,000 tons a year ago.

### FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices for the week ended April 4 stood at 75.3, as against 75.6 the week before, and 76.0 two weeks before.

### BANK DEBITS

Bank debits to individual accounts outside of New York City during the week ended April 1 were 28 per cent below those a year ago.

### STOCK MARKET

The stock market last week continued to be depressed. The market was under pressure during the entire week, with only a few temporary rallies. The volume of trading was on a moderate scale, with buying orders extremely limited. Practically all issues showed net declines for the week.

### BROKERS' LOANS

Brokers' loans in New York City during the week ended April 1 decreased \$33,000,000, bringing the total down to \$1,875,000,000. This is quite in line with the insignificant weekly changes reported lately.

### RESERVE STATEMENT

The consolidated statement of the Federal Reserve banks for the week ended April 1 showed a very slight decrease in holdings of discounted bills, while holdings of government securities remained unchanged. Holdings of bills bought in the open market increased \$84,000,000. The reserve ratio on April 1 was 83.5 per cent, as against 85.4 per cent a week earlier, and 84.3 per cent two weeks earlier.

## Junking Plans Scrap 350,000

**N.A.C.C. Announcement Figure Closely Follows Our Estimate**

NEW YORK, April 6—Government figures for 1930 motor vehicle registrations show that 2,925,000 cars were junked during the year as the result of normal wearing out and of the special junking plan of manufacturers, Alfred Reeves, general manager of the National Automobile Chamber of Commerce, indicated in a report to directors.

This figure is within less than 1 per cent of the *Automobile Trade Journal* estimate of 2,896,279 reported in *Automotive Industries* last week, when the figures were given by makes of cars.

Removal of 350,000 antiquated vehicles from service is credited to the highway safety program recommended to manufacturers by the directors of the N.A.C.C. about a year ago. Members representing 87 per cent of the total production are participating in the plan.

Mr. Reeves anticipates that during 1931 an even greater number of vehicles will be removed from the highways as other companies join in this junking plan. Those at present participating include Buick, Chevrolet, Chrysler, De Soto, Dodge, Ford, Graham, Hupmobile, Cadillac, Marquette, Nash, Oakland, Oldsmobile, LaSalle, Plymouth, Pontiac, Studebaker, Stutz, Viking and Willys-Overland.

## Plan Big Spring Show

CHICAGO, April 7—With the object of drawing 1,000,000 persons into Chicago automobile showrooms from April 14 to 26, more than 500 Chicago auto dealers, members of the Chicago Automobile Dealers' Trade Association will stage a spring showing of new cars and color combinations. Each dealer will have his own exhibition, employing decorative effects. Parades, "talking" cars, tie-ups with newspaper advertising providing contests and a general campaign to impress upon the public the idea of "buying now" to replace the obsolete models, many of which have outlived their usefulness.

## Jalbert Engine Unsold

CHICAGO, April 6—George Cressaty, French patent broker, who holds the American rights to the Jalbert heavy-oil engine and other automotive developments, believes the American market is not ready for the heavy-oil engine. Contact with leading manufacturers has convinced the broker that no American firm is willing to expend the amount needed to put the engine in production and he believes

there will be no negotiation consummated within the next two years. Mr. Cressaty stated that the advance of American engineers with the Diesel engine may eventually be productive, but claims the Jalbert engine is now perfected, has recently passed French governmental tests and is ready for exploitation.

## Stinson Plans 400 Planes

CHICAGO, April 6—Present plans of Stinson Aircraft Corp., subsidiary of Cord Corp., provide for production of approximately 400 planes in 1931, fifty of which will be trimotored ships for commercial transport use and 350 of which will be four-passenger Stinson Juniors, Edward A. Stinson, president, announces. "We are now building three to five juniors daily and two trimotored ships weekly," he stated, "and we have unfilled orders for 75 planes." The company showed a net profit for the first quarter of the year and an increase of 241 per cent in sales over the corresponding period of 1930.

## Pierce Deliveries Rise

BUFFALO, April 6—Reports from Pierce-Arrow distributors reveal that their new car deliveries for the week ended March 27 reached the highest total attained any week since last August, according to a statement issued by the Pierce-Arrow Motor Car Co. Distributors' deliveries during the fourth week of March represent an increase of 34 per cent over deliveries for the corresponding week in February.

## Parmalee Reports Loss

CHICAGO, April 6—Operations of Parmalee Transportation Co. and subsidiaries for the year ended December 31, 1930, resulted in a consolidated net loss of \$49,686, after all charges, taxes and minority interests. This compares with a net profit of \$262,400, equal after preferred dividends to \$4.40 a share on 283,018 common shares in the preceding 12 months.

## Kinner Deliveries Gain

LOS ANGELES, April 6—Deliveries of airplane engines by Kinner Airplane & Motor Corp., Ltd., in the first quarter of 1931 increased 137 per cent over the corresponding period of the previous year, according to announcement today by Robert Porter, president. Deliveries in the first three months totaled 83 engines.

## Patent Show to Be Held

CHICAGO, April 6—The International Patent Exposition will hold a patent exhibition in the Chicago Merchandise Mart from April 13 to 19. Models, plans and drawings will be on display.

## Escapes



SIR MALCOLM CAMPBELL

FATE knocked at the door again for Sir Malcolm Campbell, holder of the world's land speed record, as he sped around the Brooklands (England) track, Monday, April 6, at the B.A.R.C. meeting. A broken tie-rod sent Sir Malcolm's car slithering perilously at 100 m.p.h., but he got the car under control and climbed out of it unhurt.

S. C. H. Davis, holder of several world's records for cars in the 750 cc. displacement class, and a member of the staff of the *Autocar*, was thrown from his car and seriously injured during another race in the course of the meeting.

## Chrysler Ships 26,702

DETROIT, April 6—Chrysler Corp. has reported shipments to dealers during March of 26,702 units, including Chrysler cars, Dodge cars, trucks and taxicabs, De Soto cars, Plymouth cars and Fargo motor coaches. This represents the largest month's shipments since June, last year.

For the third successive month, shipments of all Chrysler built products have shown an increase approximating 50 per cent over the preceding month. Similarly there has been a progressive improvement in the percentage of this year's shipments compared with the corresponding figures of 1930, March being 77 per cent of last year. On this basis the seasonal increase this year is going on at a higher rate than in 1930, indicating that the various divisions of the Chrysler Corp. are steadily approaching a normal condition, the corporation has stated.

## Reo Adds Custom Dept.

LANSING, April 7—A new custom department to afford a source of supply for supplementary equipment and appointments designed especially for Reo cars has been established by the Reo Motor Car Co., according to E. G. Poxson, general sales manager. Lee C. Moore, who until recently was Reo's divisional sales manager for the eastern half of the United States, has been named head of the new department.



## Wayne County Sales Pick Up

March Figures 24 Per Cent Above February, But Below Preceding Year

DETROIT, April 6—Registrations of passenger cars in Wayne County during March totaled 5240, an increase of 24 per cent over the total of 3981 for February, and a decrease of 33 per cent from the total of 7852 in March, 1930.

Ford registrations last month totaled 2293 or more than 43 per cent of the total March registrations in Wayne County. Ford March registrations were 20 per cent ahead of those for February, but a decrease of 51 per cent from the March, 1930, total. Chevrolet showed a total of 1154 registrations for the month, a gain of 44 per cent over the February figure of 640, and a gain of over 16 per cent over the figure for March, last year. Essex was third on the list with 232 cars, Buick fourth with 187, Dodge fifth with 185, and Oldsmobile sixth with 170.

Commercial vehicle registrations for the county last month totaled 353, as compared with 273 in February, and 598 in March, last year. Ford was first on the list with 247 and Chevrolet second with 50.

## Auburn Canadian Sales Up

AUBURN, IND., April 6—Shipment of Auburn and Cord cars to Canada in March was equal to 98 per cent of the total number of automobiles delivered by the company in Canada in the first three months of 1930, R. S. Wiley, export manager, announced today.

For the first three months of the calendar year, Canadian dealers and distributors bought more than twice as many Auburn and Cord cars as in the same period a year ago, Mr. Wiley pointed out.

## Continental Releases Faster

DETROIT, April 6—"Schedules recently received from customers for early deliveries show a healthy increase," states W. R. Angell, president, Continental Motors Corp. "Shipments from our plants in April will include engines for two well-known manufacturers who have recently announced new cars."

## Auburn Dealers at Peak

AUBURN, IND., April 7—Auburn added 206 new dealers and distributors in March, bringing the company's distributing organization to the highest point in its history, N. E. McDarby, vice-president in charge of sales, announced today.

## + + CALENDAR + + OF COMING EVENTS

### SHOWS

Altoona, Pa., Automobile.....April 15-27  
International Garage Exposition, Berlin, Germany.....May 9-Aug. 9

### CONVENTIONS

Washington Motor Freight Assn. Meeting, Seattle, Wash. ...April 11-13  
Aeronautical Chamber of Commerce, Detroit .....April 11-19  
S.A.E. Natl. Aeronautic Meeting, Detroit, Mich.....April 15-16  
Middle Atlantic Jobbers Convention, Philadelphia, Pa. ....April 20-21  
American Welding Society Meeting, New York, N. Y. ....April 22-24  
Steel Founders Society, Pittsburgh, April 23-24  
Natl. Battery Mfg. Assn. Convention, Niagara Falls .....April 24-25  
Eastern Carolina Exposition, Greenville, N. C. ....April 27-May 1  
U. S. Chamber of Commerce, Atlantic City .....April 28-May 1  
American Foundrymen's Assn., Chicago .....May 4-7  
International Chamber of Commerce, Washington, D. C. ....May 4-9  
American Gear Mfg. Assn., Buffalo, New York .....May 7-9  
Associated Business Papers, Hot Springs, Va. ....May 11-13  
American Society Mechanical Engineers, Baltimore .....May 12-14  
American Roadbuilders Assn., Washington .....May 15  
Automotive Engine Rebuilders Assn., Chicago .....May 18-21  
American Society Mechanical Engineers, State College, Pa. ....May 22  
Retail Delivery Assn. Convention, Washington, D. C. ....May 25-28  
National Foreign Trade Council, New York .....May 27-29  
Natl. Automobile Chamber of Commerce, New York City (Directors' Meeting) .....June 3  
Natl. Automobile Chamber of Commerce, New York City (Members' Meeting) .....June 4  
Fourth National Oil and Gas Power Meeting, A.S.M.E., Madison, Wis., June 15-18  
S.A.E. Summer Meeting, White Sulphur Springs .....June 15-19  
Steel Founders Society (Mid-Summer), French Lick, Ind. ....June 17-19  
National Association of Credit Men, Boston, Mass. ....June 22-27  
American Society Mechanical Engineers, Madison, Wis. (Oil and Gas Power Meeting) .....June 23-26  
National Association of Taxicab Owners, Chicago, Ill. ....June 29-30  
S.A.E. Aeronautic Meeting (in conjunction with Natl. Air Races), Cleveland, Ohio .....Sept. 1-3  
American Welding Society, Boston, Mass. ....Sept. 21-25  
National Safety Council, Chicago, Ill. ....Oct. 12-16  
Society Industrial Engineers, Pittsburgh, Pa. ....Oct. 14-16

### S. A. E. SECTION MEETINGS

April 8—Cambridge, Mass. (New England)  
April 9—Baltimore  
April 9—Chicago  
April 9—Indiana (Indianapolis)  
April 9—Pittsburgh  
April 10—Wichita, Kan.  
April 15—Canadian—Toronto  
April 15—Philadelphia  
April 16—New York City (Metropolitan)  
April 20—Cleveland  
April 28—Washington, D. C.

## Ajax Rubber Co. Expects Foreclosure

Arrangements Being Made to Refinance Eastern Subsidiary

RACINE, WIS., April 6—In a letter to stockholders, H. L. McClaren, president of the Ajax Rubber Co., says that arrangements for refinancing the concern are impossible and the Chase National Bank of New York, trustee for the holders of \$1,324,400 of its bonds, will be permitted to bring suit to foreclose the issue. In addition to the bond issue, the Ajax company is in default in respect to its obligations to bank creditors in the sum of \$500,000, Mr. McClaren explains, and it also has defaulted in the payment of interest on its \$500,000 of 8 per cent gold notes.

He says there will be a deficit to the bondholders after disposal of the mortgaged property, and a deficit to the company's creditors in excess of \$1,000,000. Arrangements are being made to refinance the McClaren Rubber Co., an eastern subsidiary, and keep it intact and in production. New capital of \$375,000 is being provided.

## Reo Books Big Order

DETROIT, April 6—Reo Motor Car Co. of Lansing has received an order representing more than \$1,000,000 and involving the sale of several hundred Reo-Royale passenger car chassis to the National Casket Co., world's largest manufacturers and distributors of caskets and funeral supplies, which will use Reo built chassis exclusively in its automotive equipment.

Delivery has already started on the first 50 units, it was stated by E. G. Poxson, general sales manager of Reo.

Hearse, ambulance and other special bodies for the Reo chassis will be built by the Henney Motor Co. of Freeport, Ill., according to H. L. Stein, sales manager of the National Casket Co., who confirmed reports of the deal with Reo.

## Luitink Changes Name

MILWAUKEE, April 6—Wm. Luitink & Sons Mfg. Co., 775 Eighteenth St., maker of tools, dies, jigs, special machinery, automotive stampings, etc., has changed its corporate title to Luitink Mfg. Co. Ownership and management of the company remain unchanged.

## Chattanooga Plans Show

CHATTANOOGA, April 6—The sixteenth annual Chattanooga automobile show will be staged at the Memorial Auditorium, April 13-18. L. H. Dooley, of Dooley Motors Co., is chairman of the committee.